

AD-A084 082

WEST VIRGINIA UNIV MORGANTOWN

F/G 13/2

A HISTORY OF THE WESTON & GAULEY BRIDGE TURNPIKE, (U)

NOV 79 E L KEMP

DACW69-79-G-0003

NL

UNCLASSIFIED

1-1
2-1
3-1



END
DATE
FILMED
6 80
DTIC

ACA084082



November 1979

U. S. Army Corps of Engineers
Huntington District

This document has been approved
for public release and under no
distribution is unlimited.

DTIC
C-100-100

DOC FILE COPY

80 5 7 57



THE SEAL OF THE DEPARTMENT OF THE INTERIOR, UNITED STATES OF AMERICA

6 A HISTORY OF THE

WESTON & GAULEY BRIDGE TURNPIKE

DTIC
ELECTE

MAY 9 1980

by

10 E. L. KEMP Ph.D.

Professor of the History of Science and Technology
and of Civil Engineering, West Virginia University

11 Nov 79

&

12/66

J. K. KEMP, Ph.D.
Research Historian

This report was prepared under a contract with the
Huntington District of the United States Army Corps
of Engineers, in fulfillment of contract/purchase
number DACW 69-79-Q-0003 - ren

15

374100

This document has been approved
for public release and sale; its
distribution is unlimited.

TABLE OF CONTENTS

	Page
Introduction.	1
Acknowledgement	2
Early Roads and Trunpikes	3
The Turnpikes of Virginia	5
Turnpike Surveys and Construction Practices	8
Weston and Gauley Bridge Turnpike	9
Notes	41
Appendix.	47
Bibliography.	54
Abstract.	56
Figures	57
Maps.	58

Accession For	
NTIS	GRA&I
DDC	TAB
Unannounced	
Justification	<i>file</i>
By	
Distribution/	
Availability Codes	
Dist	Avail and/or special
<i>A</i>	

INTRODUCTION

In 1849 work was begun on a turnpike road through a wild and largely unsettled area of western Virginia. Considering the very limited resources and lack of any local engineering experience it was a bold undertaking indeed. What the proponents of this enterprise lacked in technical and financial resources they made up by a display of broad based local support and great enthusiasm. There was nothing unique in this approach to building a national transportation system since it had been used earlier for roads, canals and railways in both Britain and America. In an Age of Progress turnpikes in both countries were built in response to local institutions and not according to any national plan. Little wonder that many failed to provide the expected financial returns, but they did provide the arteries for industry and commercial development, and in that sense they were successful.

The Weston and Gauley Bridge Turnpike, stretching nearly 110 miles through a very rugged appalachian landscape, provides an excellent example of how turnpike roads were conceived, designed, financed, constructed and operated. To appreciate fully the history of this turnpike and its influence on the region through which it passed, its story must be presented in the larger context of the history road construction and as part of a larger enterprise in Virginia.

ACKNOWLEDGEMENT

This history of the Weston and Gauley Bridge Turnpike is based on original records of the Board of Public Works held in the Virginia State Library, county records of Lewis, Braxton, Nicholas and Fayette counties in West Virginia and archival materials held in the West Virginia Collection, West Virginia University and the West Virginia Department of Archives and History. General references works at the Alderman Library, University of Virginia and the authors private collection were also consulted.

The authors wish to acknowledge the generous assistance provided by each of the above institutions. We are especially grateful to Mr. John Salmon of the Virginia State Library, to Mr. Howard Newlon of the Virginia Highway Research Council and to Dr. George Parkinson, curator of the West Virginia Collection, each of whom made our research more productive and enjoyable by the personal assistance given to us. We would also like to express our thanks to Miss Myrtle Auvil for her assistance with the covered bridges on the Turnpike and for her kind permission to use her photographs.

EARLY ROADS AND TURNPIKES

C Much has been written about Roman engineering skills and accomplishments, particularly about the vast network of Roman roads which connected all parts of the Empire with Rome (1). At first glance there would appear to be little more than a tenuous link between a little known and rather insignificant mountain turnpike in 19th century Virginia and the Roman roads in Europe. Closer inspection, however, reveals that Roman engineering had a significant influence on road construction technology in the 18th and 19th centuries as reflected in design, specifications and construction practices.

Roads in one form or other have existed since the dayspring of civilization, but it was the Romans who first built permanent roads using techniques developed on an empirical basis. These roads served both the military and commercial needs of the Empire. They were so well built that the appellation "permanent" is most fitting. The need for surfaced all weather roads was largely the result of the use of wheeled vehicles, the tires of which chewed up the surface of dirt and even lightly gravelled roads at certain times of the year.

The principles of construction were twofold, namely adequate drainage and a sound foundation. The Romans appreciated the need for good drainage since a waterlogged road sub-base of fine material such as clay or silt loses most of its bearing strength. As a result Roman roads were generally built above the elevation of the natural ground on a low causeway and were provided with generous ditches. A solid foundation was achieved by a layer of compacted earth upon which was placed a course of small stones followed by an impervious course of lime or hydraulic cement concrete using local aggregates. The camber was built up with a crowned course of gravel supporting a wearing course which was typically composed of large hand placed paving stones. Details of this system are shown in Figure 1.

The collapse of the Roman Empire saw the virtual disappearance of wheeled road vehicles until the 16th century in Europe. The Europe that arose from the ashes of the Empire developed along and depended heavily on rivers and later canals for the movement of goods and people. Land transportation was largely a matter of pack animals, riding horses or for the poorer classes, walking.

C The Renaissance saw a rapid expansion in trade as well as a lively interest in the classical world of Greece and Rome. This resulted in a great increase in the use of wheeled vehicles for carrying passengers as well as goods, which necessitated better roads. In Tudor times parliament passed an act in 1555 which endeavored to make more systematic and at the same time strengthen the traditional organization and responsibility for road maintenance by the parishes. The Virginia system of using "male titheables" for road work stems from this English tradition (2). This traditional system persisted from Elizabethian times until nearly the end of the Hanoverian kings, but it never was really satis-

factory. Even as late as the Napoleonic War roads in both Britain and America were in an appalling state. Yet in the Renaissance period interest in the Romans provided an insight into the superb road system the Romans must have had. The Roman achievements in road building provided an inspiration and an example for better roads.

By the end of the 17th century national governments, particularly the French, were in a better position to finance and construct roads and canals on a national scale. France lead in this movement and in 1716 the Corps de Ponts et Chaussées, to supervise public workes, was founded (3). Dating from this time roads in France were now laid out with considerably better alignment and better drainage. This work was under the supervision of road and bridge engineers of the Corps de Ponts et Chaussees in Paris. Pierre Trésaguet developed a new system of road building which was adopted throughout France c. 1775. His method was to lay two courses of large stones followed by a layer of small stones all well beaten down (i.e. compacted) to leave no gaps between them. In this way he provided a smooth wearing surface which was also virtually waterproof if well maintained. With this system the iron rims pulverized enough of the surface to provide a binder for the crushed stone which was slightly cementitious and resulted in a waterproof surface for the road. Trésaguet also provided better drainage and with his insistence on adequate maintenance the result was a marked improvement in roads. The Tresaguet system is shown in Figure 1, where it can be seen that in a sense the French method was the reverse of the earlier Roman system with the larger stones used to form a solid base on the bottom of the road and not a wearing surface on the top as in the Roman method of road building. The method inspired American practice directly and circuitously through Telford and McAdam, whose methods are described subsequently.

In England road and canal building was accomplished by private stock companies established by Parliament and authorized to construct a road or canal for public use between specified geographical points. In the case of roads these became toll roads or more commonly turnpikes from the traffic control bar at each toll gate. The system of turnpike roads in England was well established in the 18th century. The turnpike trusts levied tolls, a part of which was supposed to be used to keep the roads in good repair. The rest of the tolls, if any, were used to pay dividends on the issued stock.

The first turnpike, The Great North Road, was authorized by Parliament in 1663. Between 1720 and 1730 there were 71 turnpike acts. These new turnpikes varied considerably in quality but were a decided improvement on earlier roads. The turnpikes were abolished in England with the General Highways Act of 1835 which created a parish organization for building highways. Since that time there have been no toll roads built in Britain.

In both France and England, except for turnpikes, roads were built with the use of statutory labor, whereby citizens were required to work

a fixed number of days a year, making or repairing roads. In the American colonies before the Revolution the same method was adopted. Each county appointed a supervisor to oversee the construction and maintenance of roads. They were also authorized to command all males over 16 years of age to work on the roads on appointed days. Occasionally money was available for road work through private donations or the proceeds of public lotteries. The British system of turnpikes was not introduced until after the Revolutionary War. By the end of the 18th century there was a great increase in traffic on the roads and a great need for more and better roads. The old system of keeping roads in repair by local county authorities was insufficient to meet the demand. The States and Federal Government did not have the capital to invest in a public system of roads. The one exception being the National Road. Thus, chartered turnpike companies using mixed private and public capital seemed to offer the best alternative. The first turnpike in the United States was authorized in 1772 by Virginia (4). From this date, turnpike companies proliferated and after 1800 most of the States authorized toll roads. these turnpike roads were built by private contractors using hired labor. The American road builders looked to the developments of the French and British engineers as leaders in road construction.

THE TURNPIKES OF VIRGINIA

The early roads in Virginia following the routes taken by the early settlers in the Western part of the state were merely trails blazed by the frontiersmen or Indians. After the Revolutionary War new roads and the repairing of old roads were under the government of the county courts who could apply to the General Assembly for help in building major works such as bridges. Road building proved too costly for the counties alone and the legislature authorized the construction of toll roads where it was hoped that the tolls would pay for the cost of the road and its later maintenance. In 1772, the Virginia legislature authorized the first toll road between Jenny's Gap and Warm Springs in Augusta County. One of the early and most successful toll roads, the Little River Turnpike, was chartered in 1811. In the early days of the turnpikes the general Assembly provided some of the money and the rest was raised by lottery. Joint stock companies were a later development. The number of turnpikes constructed in Virginia between the end of the Revolutionary War and the general turnpike Act of 1817 was very small. There was no comprehensive plan for building roads to complement the growth and development of the state. Attention was drawn to the need for such an overall plan by a famous report on roads and canals delivered to the United States Senate in April 1808 by Albert Gallatin (5). Gallatin, who was secretary of the Treasury, believed that it was in the best interests of the new nation to have a comprehensive transportation plan to facilitate trade and develop the country - "good roads and canals will shorten distances, facilitate commercial and personal intercourse and unite, by a still more intimate community of interests, the most remote quarters of the United States". Gallatin proposed a plan to improve connections between the Atlantic sea ports and to link these ports with the Great

Lakes and the Western waterways by reaching the Ohio River. He felt that so great a plan as this could only be accomplished by the Federal Government since there was simply not enough private capital to accomplish so ambitious an enterprise and the population of the U.S. was spread so thinly. Good transportation was, however, he felt necessary for the good of the nation. "No other single operation, within the power of Government, can more effectively tend to strengthen and perpetuate that Union which secures external independence, domestic peace and internal liberty".

The main emphasis in his report is upon canals which were at the time the most advantageous means of transporting goods over any distance. Roads were secondary to the canals and were to be built as links where it was not feasible to build canals. This attitude had prevailed in Britain with regard to early railways and canals. The interest in canals was reflected in Virginia's early legislation and continued support of canal companies at the expense of railroads, especially the James River and Kanawha Canal.

By the time of Gallatin's report the population of Virginia had increased considerably and a greater part of the state was permanently settled. The need for adequate transportation was quite apparent and in 1816 the Virginia General Assembly created the nation's first Board of Public Works and Fund for Internal Improvement. This provided for the establishment of joint stock companies using both public and private capital. The principal function of the Board of Public Works was to supervise the internal improvements of the state. The Board assessed the merits of various turnpike proposals, examining the location, construction methods, costs etc., and recommended to the Legislature that certain private companies be chartered. The Board also administered the state funding for these turnpike companies. The turnpike companies were required to report annually to the Board of Public Works on the progress of their work and the Board in turn made an annual report to the General Assembly. The Board of Public Works, however, had no authority or power to plan or build roads, it was only to advise the legislature and to supervise such building as the legislature had authorized. This meant that there was no centralized plan for road building in the state and the roads which were built resulted from local initiative regardless of whether they satisfied the transportation needs of the state as a whole. As a result in the first 40 years of the 19th century most of the turnpikes in Virginia were built in the eastern part of the state. In the western part (now West Virginia) the population was too small to raise the necessary capital for a turnpike. After 1840 there was a marked increase in turnpike companies chartered in western Virginia. But it must be noted that at this time numerous railroad companies were chartered in eastern Virginia. The turnpike as a means of transportation was being eclipsed by the railroad and western Virginia was again neglected in this respect. A situation which was remarked at the time by the discontented western Virginians.

The weaknesses of the Board of Public Works in providing for the comprehensive transportation needs of the state was clearly felt by its

most famous chief engineer, Claudius Crozet, who was often at odds with the General Assembly. Capt. Crozet had been a French artillery officer under Napoleon. After the battle of Waterloo he had left Europe, in 1816, for the United States. He served as a professor of Engineering at the U.S. Military Academy until 1823 when he became the principal engineer of Virginia. He served in this capacity from 1823-1831 and again from 1838-1843. The break in his service was a result of his disagreement with the Legislature. He was an early advocate of railroads and proposed a railroad to link the east and western parts of the state. The influential members of the Legislature favored canals and after a reorganization of the Board of Public Works, Crozet resigned. Later as the State recognized the use of steam locomotives, Crozet was reinstated as chief engineer until 1843 when the office was abolished. He continued to serve the state as a consultant.

The job of chief engineer was not an easy one but he accomplished a great deal in improving transportation in Virginia. He was responsible for two major east-west routes to link the two parts of the State, the James River and Kanawha Canal and the Northwestern Turnpike. Crozet and his engineers conducted surveys throughout the State to determine the feasibility of roads. The private turnpike companies chartered by the General Assembly were responsible for the actual building of the roads and Crozet was often critical of these roads. His advice with regard to location, alignment, width, or construction was often ignored by the companies and he was critical of the resulting roads. He was also very conscious of the need for accurate surveys and maps of the State to assist in the location of new roads. However, he had great difficulty in persuading the General Assembly to provide the means to achieve a satisfactory map. Although he did produce several maps for the State, his most notable one in 1848, he was dissatisfied with the results and continued to urge the need for an adequate map. On the whole, the legislators failed to appreciate his concern (6).

With the interest in turnpikes at the beginning of the 19th century the establishment of the Board of Public Works, the Virginia General Assembly passed a general Turnpike Act in February 1817, to regulate the incorporation of turnpike companies.

This act set forth the general regulations for turnpike companies. The first part is concerned with the raising of the stock. After the subscription books had been opened and the public notified, half of the said capital must have been subscribed before the company could be declared incorporated. The subscribers then could elect a president and five directors to transact the business of the company. The president and directors were empowered to buy any land necessary for the road. If a landowner would not agree, the county courts would settle the matter and award the landowner damages. The regulations for the road itself were given as follows: the road must be 60 feet wide, 18 feet of which to be well gravelled; a summer, or side road, 18 feet wide was to be kept in good repair. Every five miles a toll gate could be erected. The maximum weights were given for wagons according to the width of

their wheels, the wider the wheels the larger the weight the wagon was allowed to carry. Scales were to be erected to check these weights. The tolls were fixed as a score of sheep or hogs, 6¼c., score of cattle, 12¼c., every horse, mare or mule, 3c., two wheeled carriage, 10c., cart or wagon with wheels less than 4 inches, 6¼c. for each animal drawing it, cart or wagon whose wheels were 4 inch but less than 7 inches, 3c. for each animal, cart or wagon with wheels more than 7 inches, 1c., for each animal. Troops and public state property were exempted from tolls. The subscribers must hold an annual meeting. The road must be kept in good repair. If the directors failed to keep it in good repair the local magistrate could suspend tolls. Persons using the road were instructed to drive to the right hand. The road construction must begin within 2 years from the date of incorporation and be completed within 10 years.

All subsequent acts incorporating turnpike companies were bound by the regulations of this act except for the provisions which were specifically stated. The interest in building turnpikes was high and many companies sought charters. The greatest difficulty these companies faced was raising sufficient funds from private investors before actual work could be done and before the State would contribute its share. 20% of the private portion had to be actually collected before the State would contribute. Out of 647 companies chartered by the State, less than 30% even became operating companies, and very few of these ever made enough money to operate successfully.

TURNPIKE SURVEYS AND CONSTRUCTION PRACTICES

When the company had enough money they could begin to build their road. The actual construction of the road varied from company to company. The 1817 Act simply specified that the road should be cleared for 60 feet, of which at least 18 feet should be covered with gravel. In the western part of the State, where road builders encountered numerous difficulties, the width of the road was often reduced and the summer or side roads, dispensed with altogether. Some turnpikes were no more than improved dirt roads while others were macadamized and constructed with elaborate drainage systems.

There were several manuals of road building practice available to road builders early in the 19th century (7). Most of the experts agreed that a good dirt road was adequate for all kinds of vehicles but to keep the dirt road in good condition it must be covered with some sort of covering to keep the road dry and to provide a smooth surface for vehicles. The gravel and stone which were put upon the road were not the road itself but simply a protective coating. The method by which the coating was applied and the materials of which it should consist were the subjects of great debate. Basically two methods were advocated as proposed by McAdam and Telford, two leading British engineers.

John Loudon McAdam published his method of road making in a book

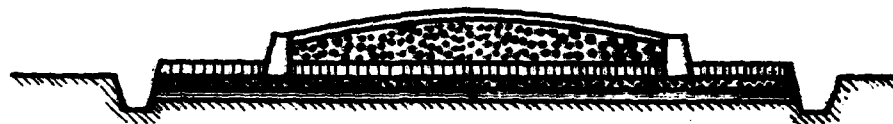
called System of Road Making in 1821. The surface of his roads was covered with small irregular stones. He recommended a hard stone which was broken by hand into cubical pieces which would pass through a ring 2½ inches in diameter, see Figure 2. The stone was broken with a hammer six inches long and weighing about 1 pound, with a handle 3 feet long, if standing, or 18 inches if sitting. He recommended a coating of 12 inches of consolidated stone. The road bed must be properly shaped and sloped each way from the center. On this bed 3 inches of clean broken stones were laid in dry weather then traffic allowed on the road to consolidate the stones, or a heavy roller could be used. Then a second coating of three inches was added, during a wet period and again compacted. A third and fourth coating were laid in the same way. A cross-section of a typical McAdam road is shown in Figure 1. In practice a McAdam road appeared as in Figure 3.

Thomas Telford constructed his road of broken stones upon a specially prepared bed. Upon a level bed he set by hand a course of stones to form a firm pavement. The stones in the middle of the road were to be 7" deep, at nine feet from the center, 5", at twelve feet from the center, 4", at fifteen feet, 3". All the interstices were filled with stone chips. Upon this pavement four inches of hard stones broken to fit through 2½" ring, were laid, compacted and then another 2 inches laid, for the middle 18 feet. Broken stone or gravel was then laid on the sides to give a convexity of the road six inches from the center to the sides. The whole road was then covered with a binding of 1½ inches of good gravel. A cross section of a typical Telford road is shown in Figure 1.

There were proponents of both kinds of broken stone roads but the McAdam system seems to have prevailed in Virginia. The McAdam method was clearly easier and cheaper to build. The actual construction practice no doubt differed widely from company to company and not all macadamized roads were built to the rigorous standards advocated by McAdam.

WESTON AND GAULEY BRIDGE TURNPIKE

With the interest of the nation turning towards the expansion westwards in the early years of the nineteenth century, there was considerable interest in improving and building roads from the east to the Ohio River. In the first half of the nineteenth century there were four main east-west roads which crossed Virginia and contributed greatly to the increasing settlement of western Virginia. The first road was the federal National Road built from Cumberland to Wheeling between 1811-1820. This road touched only a little of northern Virginia but it was a road which had considerable influence on the construction of the other roads and in many ways served as a model. In 1819 the Virginia General Assembly chartered the Kanawha Turnpike as an extension of the James River and Kanawha Canal. This road was finished to Gauley Bridge in 1825 and reached Charleston in 1827 and was later extended to the Ohio



ROMAN



TRESAGUET



TELFORD



Mc ADAM

Figure 1. Cross sectional diagrams of a) Roman road, b) Tresaguet's system, c) Telford's system d) McAdam's system (from Pannell)

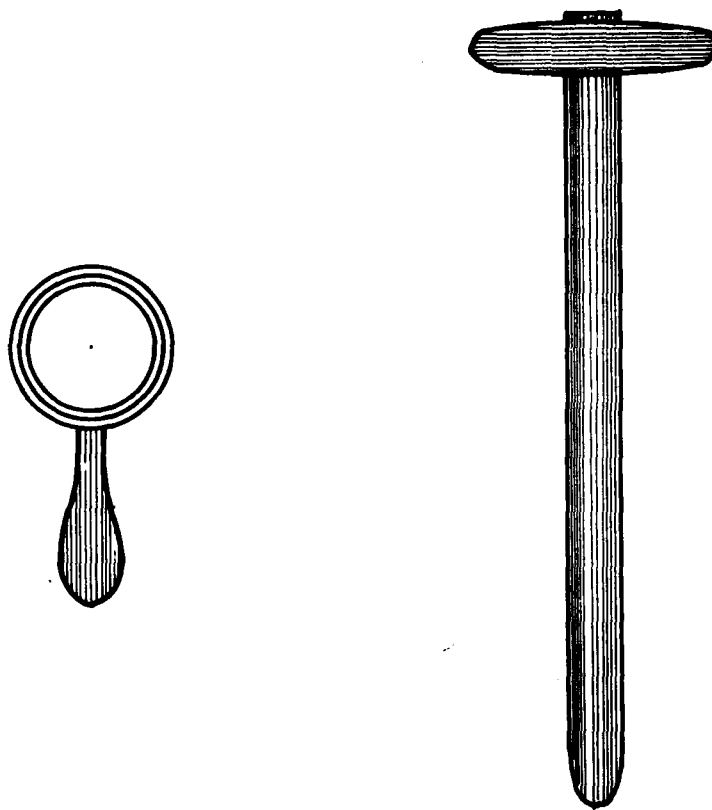


Figure 2. Drawing of ring and hammer for road construction
(from Gillespie)



Figure 3. A "macadamized" road. (courtesy of the Virginia Highway and Transportation Research Council)

river. The Northwestern Turnpike was begun in 1831 to go from Winchester to Parkersburg by way of Romney, Grafton and Clarksburg. The road did much to open up the Monongahela Valley to settlement. Finally in 1838 another east-west road was planned from Staunton to Parkersburg. This road was begun at both ends and was completed from Parkersburg to Weston and from Staunton to Beverly when the money ran out, leaving a 46 mile gap between Beverly and Weston. In 1845 this link was made.

It had long been felt that there was a need for a north-south road linking the two main east-west roads, which would provide access to parts of Braxton, Lewis and Nicholas counties which were increasing in population. In 1827 the Board of Public Works authorized a survey for a road from Gauley Bridge to Nicholas Court House (Summersville), and then to Haymond's Salt-Works (Bulltown), and then to Lewis Court House (Weston) and on to Salem. It is not clear whether the survey was made or not but a road was not built at that time. In 1837 the Virginia General assembly passed an Act authorizing a road to be constructed from the Nicholas Court House to Gauley Bridge. In 1838 another attempt was made to build a north-south road and an act authorized a road from Weston to Charleston. This road was built and served as a link from the Monongahela Valley to the Great Kanawha but did not follow the route of the later Weston to Gauley Bridge road and there was still no adequate road in this area, Figure 4.

By the 1840's the population in Lewis, Braxton and Nicholas counties increased sufficiently to make possible the construction of a north-south road. According to the 1850 U.S. census report there was a total population in Lewis County of 10,031, Braxton 4,212 and Nicholas 3,963. The number of families was listed as Lewis - 1,533, Braxton - 679, and Nicholas - 602. Lewis County was by far the most populated area and a sizeable part of the population lived in Weston, on the Staunton and Parkersburg Turnpike. The people were anxious to see a southern link with this road. Although they had a road to Charleston, the people of Weston thought that a road opening up the interior of Lewis and Braxton counties would increase trade in Weston and they were greatly in favor of the Weston and Gauley Bridge Turnpike. Lewis County had been formed in 1816 from part of Harrison County and named in honor of Col. Charles Lewis who had been killed at the Battle of Point Pleasant in 1774. In 1850 Lewis County was larger than it is now since it contained also the western part of Upshur County. The site for the county seat was chosen in 1817 and Col. Edward Jackson was employed to lay off the town into lots and mark the streets. The town was first named Preston but the name was later changed to Weston, when Preston County was formed in 1818. Weston was incorporated as a town in 1845 and Jonathan M. Bennett served as its first mayor. In 1845 there were about sixty houses in Weston, several shops and businesses. It was a growing town and was by far the largest on the route of the Weston to Gauley Bridge Turnpike.

Although the population of Braxton County was smaller than that of Lewis, a great deal of the enthusiasm for the turnpike road came from the citizens of this county. The number of individual subscribers to



Figure 4. Crozet's Map of Virginia, 1848

the stock of the turnpike company was considerably larger in Braxton County than any other.

Sutton, the county seat of Braxton County was a small town but at an important point on the Elk River. There were numerous grist and saw mills located in or near Sutton which used the Elk River for power. In addition, from Sutton downstream the Elk was navigable to the Great Kanawha and hence to the Ohio River and goods were transported by boat. A good road would make it much easier for farmers to transport their grain and lumber to the mills.

The area near Bulltown had been settled early because there was a ready supply of salt there, which was in demand by the early settlers. In 1768 at a salt lick, about 1/4 mile below the present site of Bulltown, an Indian, called Captain Bull, had come from the Susquehanna River with about five families and settled there. The Indians collected the salt and traded peacefully with the early white settlers in the area. Many of these settlers were rough people who had no respect for the Indians and seem to have been ready to fight with them on the slightest excuse. In 1772 there occurred the massacre at Bulltown when Capt. Bull and his Indians were all killed (8). The collection of salt at Bulltown remained important. In 1809 Colonel John Haymond and his brother-in-law Benjamin Wilson Jr., erected a furnace and set up evaporating kettles. At this time the Bulltown salt-works were the main source of salt in the area. The Haymond Salt Works ceased production in 1823. Salt continued to be produced in the area by John P. Byrne and Addison McLaughlin at Bulltown and by Asa Squires at Salt Lick Bridge. These three men were all instrumental in the original formation of the Weston and Gauley Bridge Turnpike and no doubt saw the road as a means of expanding their trade. The production of salt in this area does not, however, seem to have survived the Civil War.

The main occupation of the region to be served by the Weston and Gauley Bridge Turnpike was farming. The area was still thinly populated and the amount of land under cultivation was still very small. In Lewis County out of 174,979 acres of land only 48,152 acres were improved, in Braxton 16,111 out of 920,443, and in Nicholas 19,335 out of 151,684. At the same time, 1850, in many eastern Virginia counties more than half the land was improved. However, there were a number of individual farms, 878 in Lewis, 408 in Braxton and 418 in Nicholas and these people welcomed improved roads as a means of transporting their produce and livestock to markets.

Although many turnpike companies never materialized and never built a road, the proposers of the Weston and Gauley Bridge Turnpike felt, not only that there was need for such a road but that there was sufficient local support. The directors of the company saw the road as "the connecting link of like improvements stretching from Pennsylvania to southwestern Virginia and rendering accessible the most productive and interesting portions of the commonwealth; which but recently were a howling wilderness" (9). In spite of the improvements the area was still un-

settled and isolated. The directors chose to depict on the seal of the company a scene which strongly reinforces this impression. The seal is described in the first annual report of the company: "To perpetuate in history a most tragical scene which took place on the line of this road in its early settlement, in which William Given, who is yet living, and his three infant children were attacked by a ferocious bear three times, and who finally repelled and drove away the animal and saved the lives of himself and the children, we have had the seal of the company prepared with a representation of that scene", see Frontispiece.

The optimism of the directors seems to have been shared also by a great number of the people in the area and the original capital was oversubscribed by \$675.00. It is quite evident that the road had the backing of the local inhabitants since there were no claims for damage by the landowners through whose property the road went, "showing the lively interest taken by the people in the road for its prosperity and permanency" (10). The problem of damages had often plagued the Virginia turnpike companies but in the case of the Weston and Gauley Bridge Turnpike a great deal of money was saved by the cooperation of the land owners.

A letter written by one of the directors of the Company, John Robinson of Summersville, in 1850 sums up well the hopes and optimism the residents had for this road: "it is the only improvement that can ever make the counties through which it passes and will when completed be of great advantage to the state by bringing into use the hitherto hidden resources of the country. We inhabit a country that is rich in minerals such as coal, iron ore (sic) and with water power to drive all kinds of machinery, with the finest stock country if improved that I know of anywhere. If we improve those gifts nature has bestowed upon us, our section of county must prosper, our lands must enhance in value and thereby give a greater revenue to the state".

FORMATION OF THE WESTERN AND GAULEY BRIDGE TURNPIKE COMPANY

On March 25, 1848, the General Assembly of the state of Virginia passed an act incorporating the Weston and Gauley Bridge Turnpike Company with a capital stock of \$30,000 of which the Board of Public Works was authorized to subscribe \$18,000 or 3/5 of the capital stock. With the passage of this act the organizers and promoters of the road were authorized to advertise the stock and seek stock holders. The stock was sold in shares of \$25.00. Many turnpike companies in Virginia at this time were unable to raise sufficient stock after they had been incorporated and their turnpike companies never became a reality. The Weston and Gauley Bridge Turnpike, however, was very successful in raising the required \$12,000 of its share of the stock. A first meeting of the stockholders was held on October 18, 1848 at the Braxton County courthouse in Sutton, to organize the company. Asa Squire was appointed President pro tempore and John P. Byrne clerk pro tempore. Three men

were appointed, one from each county through which the road was to run, to report on the amount and legality of the stock subscriptions. This committee was composed of James G. Neil of Nicholas County, Addison McLaughlin of Lewis and P.M. Adams of Braxton. The act of incorporation had authorized the county courts to buy stock in the Company and in any amount they thought proper and the county courts subscribed to the Company in large amounts, the balance being taken by private subscriptions. The committee reported that Braxton County had subscribed \$3,000, Lewis County \$1,500 and Nicholas County \$6,000 and that private subscriptions from Braxton totalled \$1,550 and from Lewis County \$625. There were no private subscribers from Nicholas. The total amount subscribed to the Company was \$12,675.00. Only \$12,000 was needed to be sufficient for the Company to proceed with the road and therefore the excess of \$675.00 was returned, in the amount of \$25 each, to each subscriber who had bought more than one share. It is interesting to note that the private subscriptions were in small amounts, the largest being four shares. For the \$675 there were 40 subscribers of whom 13 bought one share only. The relatively large numbers of shareholders perhaps indicates the great interest and hopes shown in this road by the citizens of these isolated counties and the small amounts may well indicate the relative lack of capital in the western counties.

At this first meeting of the stockholders, the Board of Directors of the Company was appointed. Felix Sutton was appointed President of the Company and he remained its president until the road was completed. His portrait is shown in Figure 5. Felix Sutton was the nephew of the early settler on the river Elk for whom the town of Sutton was named. He was born in 1802 and was brought to Sutton by his uncle in 1810 after the death of his parents. When Braxton County was formed from Lewis County in 1836 Sutton was designated the county seat. It was a very small town at the time with very little industry. Felix Sutton was one of the leading citizens of the town and active in the promotion of the road. He helped with the formation of the new state of West Virginia and represented Braxton County in the first and second sessions of the new state Legislature. He died in 1884. John P. Byrne was appointed the clerk and treasurer of the Company. He was also at this time the clerk of the County Court of Braxton County and held this office with the Turnpike Company until his death in February 1860, when Daniel S. Squire was appointed clerk and treasurer in April 30, 1860.

According to the General Turnpike Act of the General Assembly of Virginia passed in 1817 and which controlled the formation of all turnpike companies, a turnpike company should have a president, treasurer, clerk and five directors. The five directors appointed at this first meeting were, James G. Neil, John H. Robinson and John Brown of Nicholas County, John S. Camden of Braxton County and Jonathan M. Bennett of Lewis County. They were appointed for a one year term. While the president and treasurer remained in office during the whole time the road was being built, the directors changed frequently. In the summer of 1849 the Board of Public Works received several letters from concerned stockholders suggesting that since the Board owned 3/5 of the shares of the Company, the Board should appoint 3 directors to represent its interests

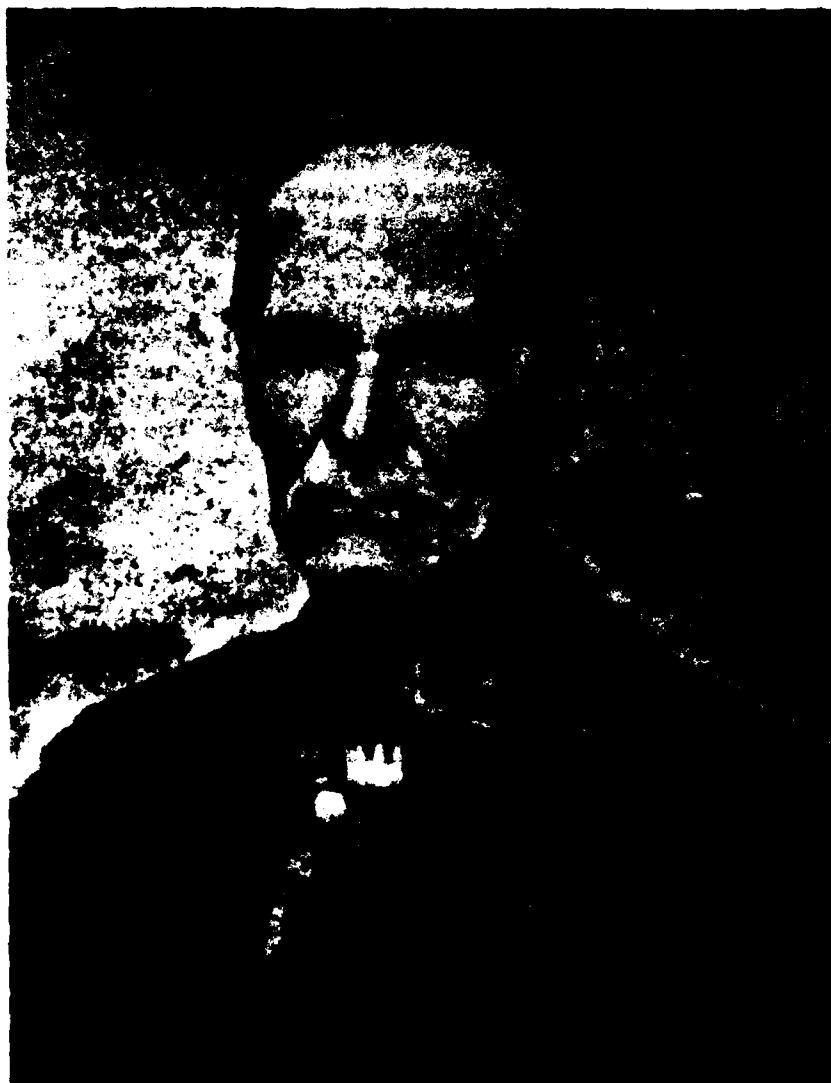


Figure 5. Portrait of Felix Sutton (from Sutton)

and recommending suitable people (12). The Board of Public Works replied that since directors had already been appointed for 1 year terms they could not lawfully be replaced. John Brannon, the State proxy, suggested that when their term expired in October 1849 then the State should appoint 3 directors (13). On September 20, 1849 the State did in fact appoint 3 directors - Jonathan M. Bennett, Addison McLaughlin and John Robinson. For the next ten years the State continued to appoint different directors (14).

In June 1849 several stockholders and interested persons wrote to the Board of Public Works recommending that a State proxy be speedily appointed to look after the state's 3/5 subscription in the Turnpike Company (15). They recommended John Brannon of Weston in Lewis County as a man "of sound discretion and judgement and of some experience in matters of this kind". John Brannon, had been the superintendent of a section of the Staunton and Parkersburg Turnpike which passed through Weston in the 1840s. In July 1849 John Brannon was appointed the State proxy, to represent the stock held by the Board of Public Works, at meetings of the stockholders. He remained the State proxy until July 1851 when he resigned because "the meetings of the stockholders of that company are held, generally, so removed from my place of residence that it renders my attendance very inconvenient and indeed my engagements on the Huttonsville Road might preclude altogether my attendance at important times" (16). He recommended that the Board appoint Johnson A. Camden in his place. The Board took his advice and Camden was appointed in September 1851.

This Board of directors, consisting of the President, clerk and treasurer and five directors were responsible for collecting the stock payments, for letting the contracts on the road and for overseeing the construction of the road and paying the contractors. There appears to have been some criticism of the company officials from time to time ranging from incompetence to mismanagement. The directors, on the whole, had little experience of road building and no doubt made mistakes. In an early letter to the secretary of the Board of Public Works, October 26, 1848, Felix Sutton had several queries as to how to proceed "being unacquainted with the general manner of proceeding in such business" (17). It seems to have been inexperience and vested interests which led to bad decisions on the part of the Company rather than deliberate wrongdoing. John Robinson wrote in 1850 to Board of Public Works "As director I wish to do everything in my power to the interest of the company. It is a new thing to manage the affairs of a company to probably most of its directors at least it is to myself" (18). The directors and stockholders of the company had their own reasons for wanting the road, some desiring it to pass through their lands, others seeing it a means of increasing their business ventures. At times, private interests may indeed have prevailed over public good. There are many instances of this. At the first meeting of the stockholders Addison McLaughlin, later a director of the Company, proposed a resolution "that the engineer be instructed in locating the Weston and Gauley Bridge Road, to cross the Little Kanawha River at the Bulltown Saltworks" (19).

The resolution passed and everyone knew that McLaughlin owned the Bulltown Saltworks. This, however, does not necessarily imply that this particular location was not in the best interests of the whole road. It was however something to consider. J. Bennett writing to the Board of Public Works in July 1849, regarding the appointment of a State proxy, remarked "I earnestly recommend the appointment of a State proxy, for this the reason that some interested land holders are endeavoring to influence the location of the road for their individual benefit and at a meeting shortly to be held will probably determine the matter and may inflict upon the State and company an expense, unwise and unnecessary of \$10,000" (20). John Brannon, the State proxy, writing to the Board of Public Works in August 1849 shortly after he assumed that position reported, "I regret to say the location has not been made in the most satisfactory manner, the inevitable result of the labors of the men who were employed to perform them on some portions of the line, by the stockholders at its annual meeting in October last and that matters have progressed so far, in many particulars, as to put it beyond the control of those representing the interest of the State and the interest of those who would be controlled by a regard for the public good" (21). This would seem to imply that the location of the road was influenced by factors other than engineering considerations.

There are also other accusations of conflict of interest upon the part of the directors from time to time. John Callaghan writing to the Board of Public Works in December 1849 to complain because he had been refused as a contractor and felt that he had been turned down because the directors were inclined to favor their own friends and relatives says, "In short the whole business of the Weston and Gauley Bridge Turnpike road seems to have gotten into the hands of a party of relatives, friends and interested persons who seem determined to ingross the whole business" (22). Since Callaghan felt himself to be the injured party his complaints must be considered in this context. But similar complaints occur again. In 1851 B. W. Byrne had replaced Addison McLaughlin as one of the State directors of the Company. Soon afterwards his appointment was rescinded and Addison McLaughlin re-appointed for reasons which remain unclear. The reason given to Byrne was that he had moved his residence from Braxton to Upshur County, a reason which he did not find compelling. He found much to complain about in the dealings of the Company and could not understand why McLaughlin's friends had wanted him reinstated since "he was wholly unfit for the office, from the fact that he had been drunk most, if not all the time for the last six months" (23). He suggested that McLaughlin had been re-appointed not because "there is no one else on the line that has qualifications but I presume it is for the purpose of carrying out some sinister motives" (24). What these motives were he does not state but he implied that the affairs of the Company were not wholly above board. There does indeed seem to have been some conniving upon the part of the Board of directors for their own interests. W. E. Arnold writing to the Board of Public Works in September 1853 to accept his appointment as a State director, felt it necessary to report an incident to the Board of Public Works which he clearly felt to be improper. At a meeting of the Company

Board, "consisting of Messrs. Camden, Brown, Cottle and President Felix Sutton, they appointed Messrs. Camden and Cottle superintendents of the road, the 1st at a salary of \$350 and the other at \$200 and Mr. Brown engineer of the road, who has since taken a contract to make 10 or 12 miles of said road" (25).

There is also some evidence of mismanagement of the funds, although from the records it is difficult to obtain a very clear picture. Jonathan Bennett, who had been a director of the Company from the beginning until his resignation in 1852, became concerned about the Company in 1855 when he wrote in June to the Board of Public Works "I have no hesitation in saying there is mismanagement in the affairs of this Company" (26). He requested a copy of the account which the Company had sent to the Board of Public Works. After he received his copy, he again wrote to the Board of Public Works in July 1855 that "The very state of things I supposed existed". He claimed that "the offices of the Company are speculating upon the money due to contractors" and that the contractors were complaining because they were unpaid. He lays the blame upon the Board of Directors except for two who were working to correct the abuses. Of the President Felix Sutton, he says he "is a very honest man but very easily imposed upon" (27).

Wherever the blame lay, the directors of the Company were negligent in their duties. William Arnold writing in September 1860 to the Board of Public Works writes "The Weston and Gauley Turnpike is in worse condition now than ever before. Albert Lewis is wholly unfit for director. In the first place he knows nothing about roads and secondly he give it no personal attention. The tolls would keep it at excellent condition properly administered. The public are suffering from his neglect" (28).

The evidence of these letters is somewhat difficult to evaluate since they usually present only one person's point of view which may well be biased. There is rarely more than one letter upon any controversy. In the case of Addison McLaughlin, W. Byrne calls him totally unfit for the job; Jonathan Bennett says of him "there is none who has more at heart the prosperity of this road than he - perhaps there is none better qualified" (29). Not all the directors were incompetent or selfserving as we see in a letter from John H. Robinson, who was a director in the beginning, written to the Board of Public Works, in November 1849. He writes "having recently become a contractor for some eleven miles of the Weston and Gauley Bridge Turnpike, I feel it a duty owed to myself to resign my office as State director. It might be thought my being road contractor and State director would conflict with the interest of the Company and this being an improvement that I have taken and have a great interest in I would wish to do nothing to mar its progress in the least" (30). He, it seems, felt a scruple about a conflict of interests which others apparently did not feel. Nor, it seems, did the Board of Public Works and Robinson remained a State director. It must of course, be kept in mind that the men of the mid-nineteenth century were not as conscious of conflict of interest situations as their counterparts today. It would also have been difficult in such sparsely populated counties

to have found men any more competent than the ones who served as directors and there would have been very few with any experience of road building.

While it may appear that the Board of Directors were not experienced in organizing and administering road making, they quickly made preparations for the building of the turnpike road. The general turnpike law stipulated that a road be cleared 60 feet wide, and at least 18 feet covered with gravel, and a summer road cleared 18 feet wide, free of stumps, rocks holes, etc. In many of the acts incorporating specific turnpike companies these regulations were relaxed, particularly in the western counties where smaller roads, built to less strict standards, were more feasible. In the act of March 1848 incorporating the Weston and Gauley Bridge Turnpike, it is stated that the Company is subject to the provisions of the general act except "that the said company shall not be required to pave or cover the road with stone or gravel, nor to make a summer or side road thereto; that the said road shall be cleared at least thirty feet wide and improved for a width of fifteen feet and at a grade not exceeding five degrees" (31).

At the first meeting of the stockholders in October 1848 William P. Haymond and Minter Bailey were appointed engineers to locate the turnpike from Weston to the Nicholas County line crossing the Little Kanawha River at or near the Bulltown Saltworks. John Brown and James G. Neil were appointed engineers to locate the road from the Braxton and Nicholas County line to some point at or near the Falls of the Great Kanawha, and that in locating the road they were instructed to follow as closely as practicable the route of the county road. It was expected that the engineers would have located the road by the following year. In December 1848 Minter Bailey wrote to the Board of Public Works to "ask the Board for a Theodolite" (32). They could apparently not acquire one locally. It would be nice to know if they did receive one or not, but they apparently managed to locate the road. James Neil also wrote to the Board in August 1849 to enquire what price was paid "as an average in the western part of the State to the engineers for locating roads by the day or by the mile" (33). This may indicate that they had already finished the location and were anxious to be paid. Although we have no record of the prices paid on the Weston and Gauley Bridge Turnpike, some records for the Slavin's Cabin and Summersville road are extant and may give a general idea of the rates of pay. In May 1853, the superintendent, James Bennett, reported that an assistant engineer received \$2 a day, one man to cut brush, \$15 per month, one staff or rod bearer, \$15 per month, 2 chain bearers \$15 a month each, one hand to drive stakes, \$15 per month, one guide, assistant packer and camp keeper, \$15 per month, one packer and horse, \$1 per day, and boarding for the whole party, \$2 per day (34). According to the first annual report of the Company in October 1849, the location of the road was well under way but not yet completed. William Haymond and Minter Bailey had located in their section, the road between Weston and Sutton, a distance of 43 miles, but the remaining part south of Sutton to the Nicholas County line was not yet located. The other two engineers John Brown and James

Neil had located 25 miles of the road in Nicholas County but some part was still to be surveyed. They estimated that the whole road between Weston and Gauley Bridge would be 106 miles, 68 of which had been located, 38 still to be located.

These men who had located the line of the road were local citizens and apparently had no particular qualifications for the job other than an interest in the road and a familiarity with the country. They did not locate the road to everyone's satisfaction. James Bennett, a Weston resident and stockholder, who was later engineer and superintendent of the Slavin's Cabin road, writing to the Board of Public Works in January 1849 says "it is a matter regret that competent experienced engineers, appointed by yourselves, were not employed in the location of these roads (he is also taking about the Weston and Fairmont Road). Yet this misstep may be remedied in some degree, by the appointment of an experienced and scientific superintendent, and at a salary sufficient to engage the services of one such for each road would hardly be afforded, I wish to suggest the propriety of giving the making of both roads to one superintendent" (35). He suggested Dr. James McCally of Clarksburg who had superintended parts of the Northwestern Turnpike. His suggestion appears to have been ignored and the directors of the Weston and Gauley Bridge Turnpike at a meeting held on July 2, 1849 appointed "L. D. Camden and H. G. Campbell superintendents of the road and fixed the annual salary of the former at \$350, and of the latter at \$150" (36). Mr. Camden was assigned to the division of the road north of Nicholas County and Mr. Campbell to the part south of the Nicholas-Braxton line.

With most of the road located and the superintendents appointed, the Board began to let contracts for the actual work of building the road. They advertized for contractors with handbills similar to the ones in Figure 6. The actual specifications for the road no longer exist but they were no doubt similar to those written for the Slavin's Cabin and Summersville road in 1855, see Appendix. The contracts were let usually in sections of five miles. The width for the Weston and Gauley Bridge Turnpike was to be fifteen feet and cleared 30 feet. At each stage in the construction of the road the superintendent had to examine the contractors' work before he embarked on the next stage. Then the contractor had completed his section and it had been accepted by the superintendent he was obliged to keep it in good repair for one year. Before a contract was signed the contractor had to obtain a bond equal to the value of the contract. The Weston and Gauley Bridge Turnpike was not macadamized over its entire length. A typical section of such a road is shown in Figure 7, where the surface is being smoothed with a horse drawn drag. Small sections around the principal towns were macadamized and separate contracts were let for these sections. In the summer of 1849 the first contracts were let. The entire road in Lewis County from Weston to the Braxton County line, a distance of 19 miles was let at the average price of \$310 per mile, and 24 miles in Nicholas County was let at \$405 per mile.

TO ROAD MAKERS.

Sealed Proposals will be received by the undersigned, through the Post Office, at Beverly, until Saturday, 24, day of November next, for the construction of the following sections of the Slavin Cabin and Summerville Turnpike Road, to wit;

About 4 miles of an unfinished section of 5 miles, near George Heavener's, on Point Mountain, between the 20th and 25th mile posts, on the location of said Road.

Also, a section of 5 miles near Henry C. Moor's, on said Point Mountain, between the 35th and 40th mile post.

Under a late Act of Assembly, the Board of Public Works may reduce the width of those sections to 15 in place of 17 feet, as required by the specifications of said Road.

Builders will, therefore, put in bids for a 15 feet road as well as a 17 feet road.

For those sections, bids will be received and considered either for the whole sections or for the single mile.

Proposals are also invited for the construction of two sections of 5 miles each, commencing at the 50th mile post and extending towards Summerville to the 60th mile post.

Contractors will be expected to purchase State Bonds, at par value, to the amount of their contracts, and loan the State the money necessary to pay the drafts for said work.

Specifications of said road can be had by calling at the store of E. B. Butcher, Hattiesville, at George Heavener's, Point Mountain, or at Henry C. Moore's Point Mountain.

Beverly, Nov. 1, '60. Wm. HAMILTON, Sup't.

Figure 6. Advertisement for contractors on the Slavin's Cabin and Summerville Road (courtesy of Virginia State Library)



Figure 7. Repairing a dirt road (courtesy of the Virginia Highway and Transportation Research Council)

From these early estimates of the cost per mile the directors reckoned the cost of the road "including bridges and other incidental expenses, at \$400 per mile or \$42,000 for the completions of the line of 106 miles of road" (37). Since the company had been incorporated with a capital stock of \$30,000, it was obvious that this would be insufficient to complete the road. Consequently the company obtained permission to raise the capital stock to \$45,000 by an act of the Virginia General Assembly in March 4, 1850. For this additional amount, Braxton County subscribed \$2,000, Lewis, \$500, Nicholas, \$2,000 and individuals, \$505. On February 25, 1853 yet another act authorized an additional \$15,000.

In the second annual report in October 1850 the President reported that work was progressing but "not as rapidly as desired" (38). Twelve miles were now completed but no more had been put under contract. In 1851 contracts were let for another 32½ miles so that almost the whole road was under contract. In October 1852 the Company reported that 67½ miles of road were completed and under toll. The Company built no toll house but used turnpike bars as in Figure 8. The part in Lewis County was all completed. The unfinished sections were in Braxton County south of Sutton, and in Nicholas County west of Summersville. This part of the road in Nicholas County seems to have been somewhat neglected and the people of the county appear to have complained loudly. John Brannon, the State proxy, writing to the Board of Public Works in January 1851, states that the residents of Nicholas County, wished to apply their part of the subscription, together with the proportional amount from the State, to the construction of the road from the Nicholas County Court House to Gauley Bridge first and that they cared very little for the part of the road from the Nicholas Court House north to the Braxton County line. The Board resisted this attempt of the Nicholas County residents which would have been detrimental to the whole road (39).

By the end of December 1853, 77 miles had been completed at an average cost of \$394.49 per mile. The road was finally completed by 1858 when it was reported to the Board of Public Works that it was 109 ¾ miles in length and all constructed. It was all under toll except for 11 miles at the south end which had not yet been received (i.e. accepted) by the road commissioners. The final accounting showed that the average cost per mile was \$446.59. From 1853 the annual reports list the amounts of tolls collected and the cost of repairs annually (40).

In the earlier years the construction of the road progressed fairly rapidly, presumably because they began on the easiest sections where a county road already passed. In the later years construction slowed as they encountered greater obstacles. Small bridges had to be built like the one shown in Figure 9, and described in Appendix I, under Bridges. The sections of the road which involved larger bridges were the last to be completed. On February 25, 1853, an act of the Virginia General Assembly authorized \$30,000 for building three bridges

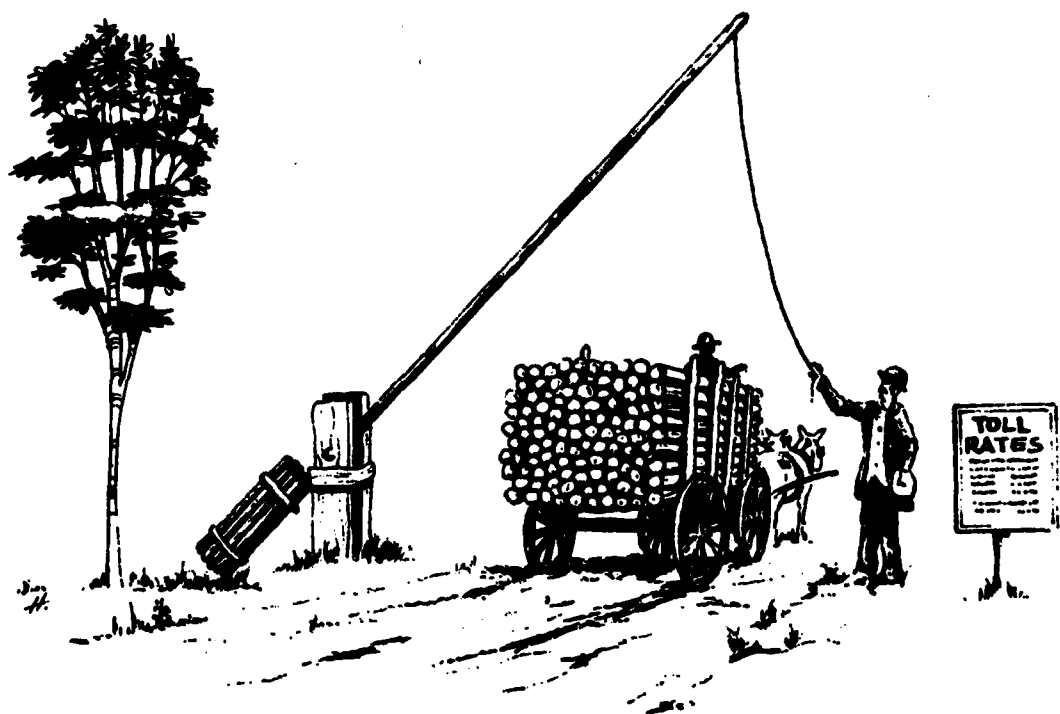


Figure 8. A toll bar (courtesy of the Virginia Highway and Transportation Research Council)



Figure 9. A typical small turnpike bridge (courtesy of the Virginia Highway and Transportation Research Council)

one over the West Fork River at Weston, called the Bendale Bridge, one over the Little Kanawha at Bulltown and the other over the Elk at Sutton. Part of this money was also to be used for gravelling and stoning the road. Under the provisions of this Act, the Board of the Turnpike Company contracted for the three bridges and also let contracts for 2 miles of macadamizing at Weston, to Perry Lorentz for \$2,205.00 and 1 mile through and north of Sutton to S. and A. Anawalt for \$1,360.05 and 1 mile through Summersville to John Bell for \$1,174.00. In June 1853 a contract for a bridge across the West Fork River was let to Henderson H. Beall for \$3,000.000. This bridge was built without any complications and was completed late in 1854, see Figure 10. The contracts for the other two bridges were both let in June 1853 to Ira Hart; the one across the Little Kanawha, a covered bridge, for \$3,400.00; the one across the Elk River for \$8,448.00.

These two bridges caused more trouble. In October 1854 the President reported that the bridge across the Little Kanawha "is not in a rapid state of progress, except the masonry, which is more than half done" (41). Eventually this covered bridge was finished and was still standing as late as 1941, see Figures 11 and 12.

The Elk River bridge caused considerable trouble. A larger bridge was needed to cross the river at Sutton and this was the largest bridge built on the Weston and Gauley Bridge Turnpike. On June 7, 1853, in Sutton, a contract was let to Ira Hart "for building a bridge over the Elk River on the Weston and Gauley Turnpike at the point selected by the turnpike" for his bid of \$8,448.00 (42). He was to construct a bridge on the "Tresle suspension plan, similar to that on the B & O Railroad over Cheat River". This would mean that they were proposing a Fink truss bridge. For some reason, which is not now clear, it was decided to alter the plans for this bridge and on the 23rd July, 1853 this contract, with the consent of Hart, was set aside. A new contract was made with Hart "to build a wire suspension bridge over the Elk River on said road to be at least three hundred feet long and warranted to sustain fifty tons equally distributed for which the company are to pay the said Hart the sum of \$9,500" (43). Hart was to enter into a bond of \$10,000. At this point Hart sublet the stonework and went himself to Wheeling to purchase the necessary wire. He bought the wire from Bodley and Company, who made the wire and the fixtures for the Wheeling Suspension bridge built in 1849, and employed Mr. Downing who had laid the wires for the Wheeling, Nashville, Charleston, Fairmont and other suspension bridges (44). On October 3, 1853 Hart took his bond to the Board which for some reason was refused and his contract set aside although his bond was accepted for the Little Kanawha bridge. The Board claimed that they did not know the signers of his bond. Then on October 4, the Board signed a contract with Benjamin W. Byrne "to construct a wire suspension bridge over the Elk River on said companies' road agreeably to the specifications filed by J. S. Camden, a superintendent of said road for which the Company is to pay to said Byrne \$12,000" (45). This bridge was to be longer, being 460 feet from the center to center of the towers, 33 feet high and 17 feet wide. Ira Hart was understandably annoyed and wrote to the Board of Public Works



Figure 10. Bendale Bridge over the West Fork River at Weston
(from Auvil)



Figure 11. Bulltown covered bridge, front view (from Auvil)



Figure 12. Bulltown covered bridge, elevation (from Auvil)

on November 1st, 1853 to complain that he had begun work on his contract in good faith and could not understand why his bond had not been accepted. The Board of Public Works acted on his part and instructed the directors of the Weston and Gauley Bridge Turnpike Company on November 9, 1853 to rescind the contract with Benjamin Byrne and restore to Ira Hart his contract of July 23, 1853. The Board of Directors of the Weston and Gauley Bridge Turnpike met on December 6, 1853 to carry out the Board of Public Work's wishes but they felt that the July contract with Hart was insufficient. Since Byrne had already built an abutment on the north side of the river, they decided, with the agreement of Hart and Byrne, that Hart should build a bridge to the same specifications as the one agreed to by Byrne using the abutment already built. Hart was to be paid \$11,500, and Byrne was to be paid \$1,600 for work already done. The bridge was to be constructed by December 25, 1854.

This was not the end, however, of problems with this bridge. Presumably construction went ahead but in December 17, 1855 Felix Sutton writing to the Board of Public Works reported that it would probably cost \$12,000 or more and asked whether it should be a toll bridge. The bridge was apparently not finished at this date but must have been finished before 1857 when tolls were first reported. A photo of this bridge is shown in Figure 13. He also informs the Board of Public Works that the bridge is being constructed 12 feet wide, whereas the contract specified 17 feet and he feels that there should be a corresponding reduction in the price paid to the contractor (46). The Board of Public Works replied on January 12, 1856 that a toll should be charged on the bridge and that since the width had been changed then less should be paid (47). They also wanted to know the reasons for the change in width. What happened next is unclear but it appears that the directors of the Weston and Gauley Bridge Turnpike Company refused to pay Ira Hart the full amount for the bridge because of the reduction in the width. Hart then brought a suit against the Company in the Lewis Circuit Court on April 6, 1857. In the Fall of 1858 Hart obtained a verdict against the Company for \$1,000, but the court set aside the verdict and the case was to continue. A compromise was proposed. Felix Sutton wrote to the Board of Public Works for their opinion "whether the Company should compromise the case or whether the suit should take its due course in law" (48). He again writes to the Board of Public Works on February 1860 that the "suit of Ira Hart against this Company is compromised; it will cost the Company about \$12,000" (49). Apparently Hart received some additional payment but whether he was paid in full or not is unclear, nor is it known why the width of the bridge was reduced.

There may have been another bridge built upon this turnpike which does not appear in the Company records. It was a covered bridge built over Salt Lick Fork near Flatwoods, 12 miles north of Sutton. John D. Sutton in his History of Braxton County quotes a letter from Harrison Kelley who says "I was employed by Mr. Chenoweth for fourteen years in the building of bridges on the Staunton and Parkersburg Turnpike. . . I built the Jane Lew bridge and the Salt Lick Bridge over the Salt Lick



Figure 13. The suspension bridge over the Elk River at Sutton
(from West Virginia University Collection)

Fork of the Little Kanawha, in Braxton County, myself" (50). This bridge no longer exists but is shown in Figure 14.

The road was finally finished in 1858 but does not seem to have lived up to the expectations of its promoters. In 1850 one of the directors of the Company, John Robinson, had written to the Board of Public Works in glowing terms of the resources of these western counties and their value to the state and had written that "this road in a few years must be profitable to the state" (51). The road may have been valuable to the residents of these remote Virginia counties but it was never profitable in terms of tolls collected. In fact the tolls barely paid for the repairs to the road. However, it is impossible to determine whether the road may eventually have been profitable since the War between the States almost completely ruined it.

In a part of the country with few roads and difficult terrain, it is hardly surprising that both sides in the Civil War used the Weston and Gauley Bridge Turnpike.

At the outbreak of the War and after Virginia had voted for secession in April 1861, both sides sought to control the Baltimore and Ohio Railroad which ran through northwestern Virginia. Major General George McClellan, with troops from Ohio captured Grafton from the Confederates and, after the battle at Philippi, the Federal troops controlled the Monongahela Valley and the railroad by the end of July. At this time Union troops were stationed in Weston. The Federal government now decided to drive into western Virginia along the Kanawha Valley. Led by General Jacob Cox the Union troops took Charleston in July and pushed on to Gauley Bridge. Henry Wise, the Confederate general retreated to the Greenbrier Valley. It was also planned that troops should move from the north down the Weston and Gauley Bridge Turnpike as a flanking movement. At the end of August 1861, Colonel Tyler left Weston with the Seventh Ohio Regiment and marched down the turnpike. They met with little resistance but were troubled by bushwackers at Powell's mountain in Nicholas County. Then at Cross Lanes they met a Confederate force and Tyler was forced to retreat to Summersville. General Rosecrans brought more Federal troops down the turnpike and was in Sutton on September 7, 1861. Three days later they fought at Carnifex Ferry and in November at Gauley Bridge which left the Federal troops in control of the Kanawha Valley. West Virginia remained largely in the control of the Union forces for the rest of the war but the Confederates made several attempts to break through from the east. In the spring of 1863 General William E. Jones and General John Imboden led a raid into western Virginia from the Shenandoah Valley. Jones was to march by way of Morgantown and Fairmont and meet Imboden at Clarksburg; Imboden was to arrive by way of Beverly and Philippi. General Roberts the Union general, in command of the troops in northwestern Virginia, summoned his troops from various locations, including some stationed along the Weston and Gauley Bridge Turnpike, and arrived at Clarksburg before Imboden and Jones. The Confederates met at Weston. From there Jones went down the Little Kanawha Valley burning the oil wells on his



Figure 14. Salt Lick covered bridge (from Auvil)

way. Imboden went south down the Weston and Gauley Bridge Turnpike which was now reported to be in bad condition from the wagon trains retreating along it. General Roberts moved into Weston.

Although the Turnpike was used mainly as a way of moving troops up and down there was some fighting along its way. There was a small engagement at Bulltown in October 1863. Early in the war a hill on the north side of the Little Kanawha overlooking Bulltown, had been fortified probably to protect the river crossing on the Turnpike there. These fortifications can still be seen at this site. The "fort" was occupied by about 400 Union soldiers under Captain William Mattingly. They were attacked on October 13, 1863 by Confederate forces under Colonel William Jackson. Although surrounded the Union troops refused to surrender and sent for help to Clarksburg and Weston. The Confederates camped for the night at the Salt Lick Bridge. Reinforcements arrived the next day from Clarksburg and forced the Confederates to retreat.

The part of western Virginia served by the Weston and Gauley Bridge Turnpike suffered not so much from major conflicts in the Civil War but from the constant depredations of raiding parties. Braxton County in particular suffered from partisan bands. The Weston and Gauley Bridge Turnpike was used constantly by both sides moving north and south from the Monongalia Valley and the Kanawha Valley. The road deteriorated quickly and there were no means to keep it in good repair during the war.

After the war the new state of West Virginia was fully occupied in organizing its government to pay much attention to its roads. In 1863 an early Act of the West Virginia Legislature provided for the construction and repair of roads and bridges but they had very little means to implement the Act. In 1866 an Act of the West Virginia Legislature transferred all turnpike roads and bridges "to the several counties in which they lie" (52). The board of supervisors in the counties were designated to take over the duties of the stockholders and to charge tolls. What became of the Weston and Gauley Bridge Turnpike from this time is unclear. A road of some kind remained in use until the formation of the State Road Commission in 1917.

In the 1920s there was a movement to get the county "out of the mud" with new hard surfaced roads. The recently formed West Virginia State Road Commission had a formidable task if the Mountain State was to achieve this goal. Morgantown was typical and in 1922 there was not a single "hard" road leading out of the town in any direction.

Long sections of the old Weston and Gauley Turnpike were incorporated into what is now U.S. route 19 which was paved in the 1920s. This new road, in general, was located in the bottom of valleys and did not run along the ridges of the hills as did the Weston and Gauley Bridge Turnpike in many places. Thus, there are several lengthy sections of the old turnpike which remain in essentially original condition.

Especially notable is the section from Bulltown north towards Weston, see Figure 15 and 16.

THE REGIONAL HISTORICAL SIGNIFICANCE OF THE WESTON AND GAULEY BRIDGE TURNPIKE

In many ways the high hopes of the directors that the Weston and Gauley Bridge Turnpike would prove to be the artery of regional development were not fulfilled. Through the ravages of war the road was in an appalling state. With the formation of West Virginia the vision that this turnpike would be a vital link in a state wide system remained only a dream.

Even today the county through which the Weston and Gauley Bridge Turnpike passed is wild and unsettled in a great part of its course. Nevertheless, this road opened up to settlement the area in Lewis County south of Weston and stimulated growth in population and commerce in communities such as Sutton and Summersville.

In the 1850s the importance and potential of the Weston Gauley Bridge Turnpike can be seen in the establishment of turnpike roads which were intended to link with this turnpike. On March 29th 1853 the Gilme and Braxton Turnpike Act was passed to construct a road from Glenville to the Weston and Gauley Bridge Turnpike at or near the Bulltown Saltworks. As early as 1849 there was interest to build a turnpike from Buchannon to the Little Kanawha River. An act was passed establishing this road on March 15, 1849, however, the project languished and was not revived until four years later. In March of 1853 the act was revised "to construct a turnpike from Buchannon to some convenient point on the Weston and Gauley Bridge Turnpike in Lewis County.

The Weston and Gauley Bridge Turnpike, together with its tributary roads, did establish the road pattern for the area which has changed very little until the recent construction of Interstate Route 79.

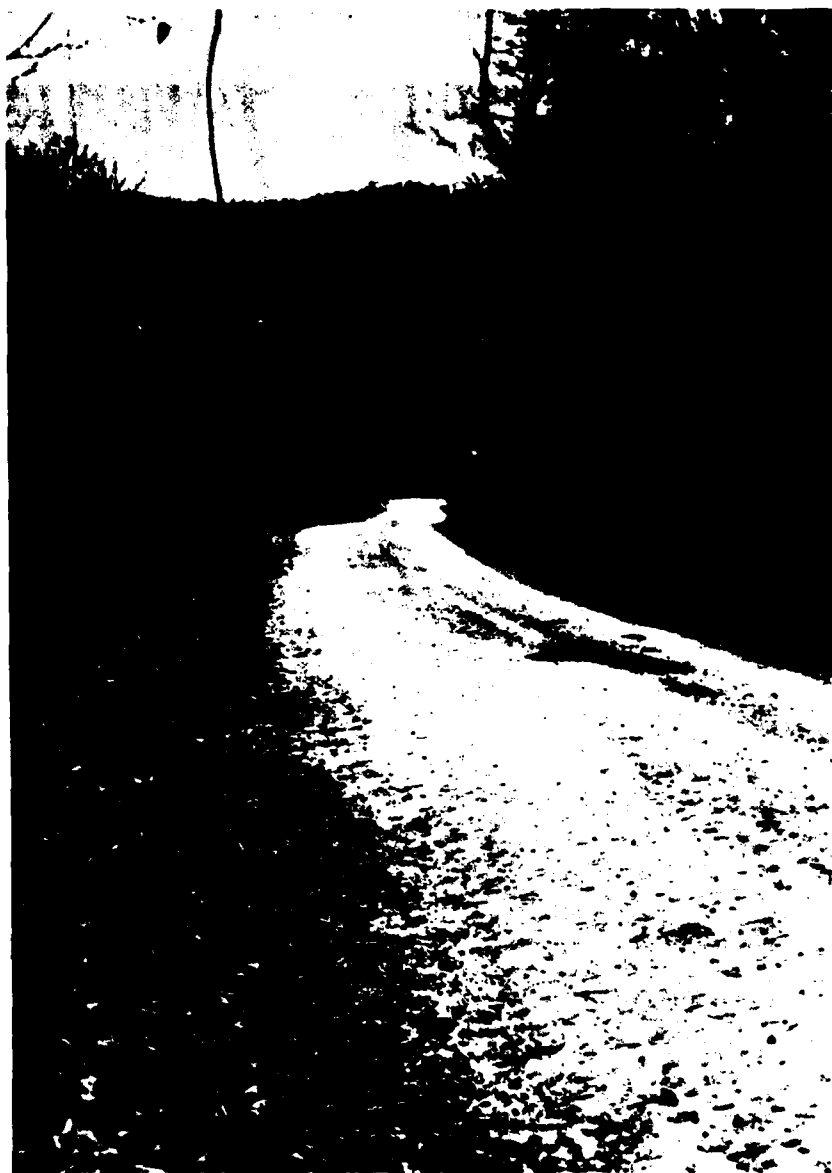


Figure 15. View of the Weston and Gauley Bridge Turnpike road today, near Bulltown



Figure 16. View of the Weston and Gauley Bridge Turnpike today,
near Bulltown

NOTES

1. A brief introduction to the history of Roman roads can be found in:
Singer, Charles, A History of Technology
Oxford University Press
London, 1957, pp. 500-508
2. The History Research Advisory Committee, Virginia Highway Research Council has prepared a number of reports dealing with early roads in Virginia. A list of publications is available, gratis from Howard Newlon, Virginia Highway Research Council, Box 3817 University Station, Charlottesville, Va. 22903.
3. With a centralized national administration and the establishment of the Polytechnique, the first school of engineering, the French were leaders in nearly all phases of engineering, both civil and military. This resulted in notable works such as the Languedoc Canal and the development of the analysis, design and construction of masonry structures on impressive levels of elegance and sophistication.
The new nation from the Revolutionary War until the Civil War was strongly influenced by the French. From the point of view of engineers at West Point with French methods, using French text books is most significant, since engineering officers were involved in a variety of engineering work. Most important of these was the construction, or more accurately re-construction, of the National Road.
4. Before the Virginia Act of 1817 turnpikes were financed by public funds and from the proceeds of public lotteries. After the Turnpike Act a new system was inaugurated which differed from either the French or British precedents. It was the formation of joint stock companies, like the British Turnpike Trusts, but financed by both private and public capital. The public funds were received from city, county and state sources. This system of mixed capital was also used extensively for railroad construction in many states.
5. Gallatin, Albert, "Report to the U.S. Senate", American State Papers, Class X, Misc. Vol. I, pp. 724-741.
Although Gallatin's report was influential in its plea for internal improvements, the American transportation system of roads, canals and railways was never planned, financed or built on a national basis during the 19th Century.
6. Maps of portions of Virginia were prepared in the pre-industrial era from the beginning of the 17th Century until the second decade of the 19th Century. For our purposes, however, the first significant map showing roads was the prestigious, but not always accurate map of Wood, Boye and Tanner. Between 1838 and 1850 the Board of Public Works was responsible for mapping. Of the maps produced during this period, Crozet's map of 1848 is the most useful since it shows the Virginia turnpike system at the beginning of construction of the Weston and Gauley Bridge Turnpike.

7. In addition to the road building specifications which formed part of the Virginia Act of 1817, a number of text books were available to engineers, which gave design information on all aspects of road layout and construction. Construction details are given on earth, gravel and more permanent road systems based on the work of Tresaguet, Telford and McAdam are presented. The most important of these books are:

Gillespie, W.M. A Manual of the Principles and Practice of Road Making, NY, A.S. Barnes & Co., 1848.

Mahan, Dennis H. An Elementary Course of Civil Engineering, for the Use of Cadets of the United States Military Academy, NY, John Wiley, 6th ed., 1860.

Parnell, Sir Henry. A Treatise on Roads, London, 1833, 2nd ed.

Penfold, Charles. A Practical Treatise on the Best Mode of Repairing Roads. London 1840.

McAdam, John Loudon. System of Road Making, London 1821.

Millington, John. Elements of Civil Engineering, Phil. 1839.

Hughes, Thomas. The Practice of Making and Repairing Roads, London 1838.

8. Cooke, Roy Bird, Lewis County Sketch Book II, p. 4. He gives a long account of this massacre and calls it "one of the worst deeds attributed to the white settlers".
9. Virginia Board of Public Works Annual Report 1848-49, p. 99. 1st annual report of the Weston and Gauley Bridge Turnpike Company.
10. Ibid.
11. Board of Public Works Inventory 425, John Robinson to B. P. W. April 9, 1850.
12. Ibid, John Wilson, J.C. Spalding, John McGee, John Brannon, Geo. W. Jackson, John Morrow, Jas. McGee to B.P.W. July 27, 1849.
- Ibid, J.M. Bennett to B.P.W. July 7, 1849.
13. Ibid, John Brannon to B.P.W. August 30, 1849.
14. It has not been possible to ascertain all the names of all the directors. The Company did not report the names of the directors annually until 1859. The following is an incomplete list of the directors and the years they served.

- 1848-49 James G. Neil, John H. Robinson, John Brown, John S. Camden, Jonathan M. Bennett.
- 1850 Jonathan M. Bennett, Addison McLaughlin, John H. Robinson.
- 1851 No record.
- 1852 Wm. E. Arnold, John S. Camden, John Brown, Wm. Cottle, Addison McLaughlin.
- 1853 Wm. E. Arnold, Philip Duffy, Asa Squires, John S. Camden, John Brown, Addison McLaughlin.
- 1854 Morgan Dyer, Wm. Arnold, Asa Squires, John Brown, John S. Camden, Addison McLaughlin.
- 1855 Asa Squires.
- 1865 No record.
- 1857 No record.
- 15. Board of Public Works Inventory 425, J. M. Bennett, John McGee, Lewis Maxwell, Cabell Tavenner, Ro. Ervin, Jas. Bennett, John Morrow, W. E. Arnold to B.P.W. June 13, 1849.
- 16. Ibid. John Brannon to B.P.W. July 30th, 1851.
- 17. Ibid. Felix Sutton to B.P.W. October 26, 1848.
- 18. Ibid. John Robinson to B.P.W. April 9, 1850.
- 19. Ibid. Proceedings of first meeting of stockholders, October 18, 1848. p. 4.
- 20. Ibid. J. M. Bennett to B.P.W. July 7, 1849.
- 21. Ibid. John Brannon to B.P.W. August 30, 1849.
- 22. Ibid. John Callaghan to B.P.W. December 19, 1849.
- 23. Ibid. B. W. Byrne to B.P.W. September 3, 1851.
- 24. Ibid.
- 25. Ibid. W. E. Arnold to B.P.W. September 26, 1853.
- 26. Ibid. J. M. Bennett to B.P.W. June 26, 1855.
- 27. Ibid. J. M. Bennett to B.P.W. July 30, 1855.

28. Ibid. Wm. E. Arnold to B.P.W. September 16, 1860.
29. Ibid. J. M. Bennett to B.P.W. September 3, 1851.
30. Ibid. John H. Robinson to B.P.W. November 22, 1849.
31. Acts of the Virginia General Assembly, Vol. 1847-48, pp. 217-17.
32. Board of Public Works Inventory 425, Minter Bailey to B.P.W. December 20, 1848.
33. Ibid. James G. Neil to B.P.W. August 18, 1849.
34. Board of Public Works Inventory 392, James Bennett to B.P.W. May 9, 1853.
35. Board of Public Works Inventory 425, James Bennett to B.P.W. January 29, 1849.
36. Virginia Board of Public Works, Annual Report, 1848-49, p. 99.
37. Ibid.
38. Ibid, 1850, p. 339.
39. Board of Public Works Inventory 425, John Brannon to B.P.W. January 20, 1851.
40. List of tolls and repair costs:

<u>Year</u>	<u>Tolls</u>	<u>Repairs</u>
1853	\$764.70	\$847.12
1854	\$454.45	\$331.05
1855	\$444.93	\$159.02
1857	\$871.19	\$867.93
41. Virginia Board of Public Works Annual Report, 1854, p. 194.
42. Board of Public Works Inventory 425, report of President and directors to B.P.W. June 7, 1853.
43. Ibid. Report of President and directors to B.P.W. July 23, 1853.
44. The Wheeling Suspension Bridge was completed by Charles Ellet Jr. in 1849 amid great public acclaim. With a 1000 feet main span it was the world's largest bridge at the time of its construction. As a result it exerted a powerful influence on the use of suspension bridges. In Virginia (now West Virginia) suspension bridges were built in the 1850s at Huntington, Charleston, Fairmont and Morgantown as well as across the Elk at Sutton, see:

Jakkula, A. A., A History of Suspension Bridges in Bibliographic Form, Texas A. & M. University 1941.

45. Board of Public Works Inventory 425, report of President and directors to B.P.W. October 4, 1853.
46. Ibid. Felix Sutton to B.P.W. December 17, 1855.
47. Tolls for the bridge were first reported in 1857 and amounted to \$87.71.
48. Board of Public Works Inventory 425, Felix Sutton to B.P.W. February 11, 1859.
49. Ibid. Felix Sutton to B.P.W. February 22, 1860.
50. Sutton, John Davison, History of Braxton County and Central West Virginia, p. 94.
51. Board of Public Works Inventory 425, John Robinson to B.P.W. April 9, 1850.
52. Acts of the West Virginia Legislature, 1866, ch. 117. p. 115.

APPENDIX

SPECIFICATIONS
FOR THE
SLAVEN'S CABIN AND SUMMERVILLE
TURNPIKE ROAD

LOCATION AND GRADES

1st. The location is indicated by stakes numbered to correspond with the stations in the field notes.

Generally, the stakes occupy the axis of the road, and indicate the grade of its surface; but, sometimes along hill-sides and in ravines, and, also, at other places where short turns occur, the stakes shall be taken as the indication of the grade according to the field notes; and it will be the duty of the Contractor to cut the road from this indication, in a regular shape, free from unsightly and inconvenient curves, and so that the surface of the road may conform exactly to the grade set down in the notes, which no where exceeds five degrees.

WIDTH

2d. The general width of the road is to be seventeen feet, exclusive of side ditches; but embankments, and where the stakes or the notes, indicate a curve with a radius less than 100 feet, the width is to be increased, if necessary, to the maximum of 22 feet, according to the nature of the curve, and the height of the embankment.

DITCHES

3rd. There must be on one or both sides of the road, as the case may require, a ditch, not less than one foot wide at the bottom, and one foot deep, with sides not steeper than 45 degrees, and sufficiently inclined to convey the water freely into a proper drain.

Thus along a hill-side the least allowance for ditches will be two feet, and on flat ground three feet.

In flat lying ground, where the ditches cannot receive an adequate forward slope, their size must be increased, and the road duly raised above the adjacent ground, according to the directions of the Superintendent.

SHAPE

4th. Through nearly level ground, not exceeding a slope of eight degrees, and in deep cuts, the road must be raised in the middle, above the edge of either the ditch or the side slope, one twenty-fourth part of its width. Also, embankments, when nearly level, must be rounded as just mentioned; but if they slope more than two degrees forward, they need not be raised more than half that height in the middle.

An additional elevation of one-tenth of their intended height must be superadded to embankments at each point, in order to allow for settling.

Along hill-sides, the slope of which exceeds eight degrees, and the radius of the curve to the hill is short, the surface of the road must be made flat and inclining to the hill, so that the outer edge may be raised higher than the edge of the ditch, one-twentieth part of the width of the road.

In other places along such hills, where the road is nearly straight, or where the radius of the curve extends from the hill, only two-thirds of the road shall slope to the hill, and the other third must be made level, so that when it settles it will incline to the lower side of the road.

SLOPES

5th. The upper slopes, cut out of a hill, shall not be less than one-half of the angle made by the declivity of the hill with the vertical.

The exterior slopes shall be those naturally taken by loose earth.

CONSTRUCTION

6th. Every tree within the width occupied by the road and ditches must be grubbed.

Every rock or stump, showing at the surface, within the said width, is to be cut down to a depth of at least two feet below the surface of the road.

7th. Beyond the ditches, every tree within 30 feet of the centre of the road must be cut down; and where the outside of the road is sufficiently level for carriages, the stumps must be shaped in a conical form, the timber being removed from the said space.

8th. The first operation after the grubbing must be the removal of the vegetable mould from the surface to the foot of the embankment.

9th. No perishable material is to be suffered to remain or be placed in the body of the road.

No stone weighing more than six ounces is to be left on its surface.

10th. When the exterior slope of the road is exposed to abrasion from a current at its base, it must be protected by stones of a sufficient size to a suitable height.

WALLING

11th. Sustaining walls, when found indispensable, must rest upon a firm and level foundation.

Their base must be at least two-fifths, and their top one-fourth of their height.

These walls, when not otherwise stated, shall be made of dry masonry. The stones must be carefully laid, with a due proportion of headers and stretchers, to the satisfaction of the Superintendent.

In general, however, it will be preferable to let the earth take its natural slope, and resort to walls only when unavoidable. Timber supports should never be permitted, unless absolutely unavoidable for want of rock within a practicable distance.

DRAINS

12th. The draining of the road must be carefully attended to. It is to be effected by adequate ditches, by raising the surface at least two feet above any body of water that may, at times, accumulate near it, and by frequent gutters or culverts.

Gutters are to be preferred where the water can be conducted over them.

They shall consist of a bed of broken stones, at least nine inches thick, on the whole width of the road, and held up at the lower side, either by a stone wall or by the natural slope of the bank, protected by a layer of large stones laid on its surface.

On either plan, the outer edge of the gutter must be formed by large flat stones inclining inwardly.

The size of each gutter will be regulated by the length of the road, the height of the adjacent hills, the extent of the valleys to be drained, and, in one word, by all the circumstances that may influence the quantity and rapidity of the water discharged.

No gutter, however, shall be less than 12 feet wide, unless for reasons appearing in the notes. The depth of each is to be one twenty-fourth part the width;--this dimension is generally stated in the notes, but may be varied by the Superintendent.

The fall of the gutters must not be less than three-fourths of an inch nor more than two inches per yard.

There must be a gutter in every depression, whether or not designated in the notes.

And at least one drain for every two hundred yards of declivity, to be located, if omitted in the notes, opposite hollows, in convex turns where the water naturally tends to cut across the road, or in artificial turns at the point where cutting changes into embankment.

Wherever along a graded hill, a gutter is to be made, the Contractor will be required to preserve distinctly, the level distance appropriated for the same. He will not be allowed, in any case, to cut it out of a graded surface. Along hill-sides, on approaching a gutter, it will generally be necessary to lessen, gradually, the inclination of the road to the hill, so as to make the transition from the inward slope of the road to the outward descent of the gutter, regular and easy. When large gutters are made across water courses, the stones composing the walls by which they are held up, must be flat, and laid sloping, with their outer edge raised, and the filling must consist of stones and gravel of as small a size as the current will permit.

13th. Culverts, unless differently stated in the notes, and only then when unavoidable, must nowhere be less than eighteen inches square, and this only when the water falling on or immediately near the road, has to be passed under it.

These small culverts to consist of two small parallel walls, at least one foot thick, or curb stones covered with large flat stones, not less than six inches thick, and at least two feet of earth.

Where stones are not to be had, substantial pieces of sound white oak, may, with the approbation of the Superintendent be substituted, the whole trough being well pinned together. Such culverts should have no earth over them.

For large culverts requiring arches to be built, if any occur, special specifications shall be made.

Small bridges will, generally, be found cheaper, and otherwise

preferable.

UPPER DITCH

14th. Where a long descent occurs, and the ground will allow it, a ditch may be cut out of the hill above the upper slope of the road, and parallel to it, to convey the water to the next valley or ravine, whereby some drains may be dispensed with, and the road be better preserved.

SWAMPS

15th. Where swampy places are crossed an embankment must be raised at least two feet above the surface, and covered with clean gravel or broken stones of the usual size, or else in wet foundations an even bed of at least two layers of fascines, no where less than one foot thick, must be prepared, to support an embankment two feet thick of earth with gravel or broken stone, as just mentioned, ditches being besides cut on one or both sides, as usual, and culverts placed under the embankment, at proper intervals, unless it be practicable to carry off the water at the sides.

16th. If the soil any where should require a capping of stone, care must be taken so to shape the road that the capping superadded may give it its proper height and dimensions. This capping is, in general, to consist of a stratum of about ten inches thick, and composed of broken stones of not more than six ounces weight, laid at three different times.

BRIDGES

17th. For large bridges plans and specifications will be furnished; they are not to make part of the road sections. But the common bridges not exceeding 40 feet will be included in the contract for the sections they belong to.

They must be made 18 feet wide in the clear for a double track, and only 12 feet if only one track is required. This last dimension will be understood to be intended when not otherwise specified.

The abutments, when needed, to consist of dry masonry, laid carefully on a firm foundation; the first course of stones to be large and flat, and the other courses to consist of a due proportion of

headers and stretchers, there being at least one header in every five feet of the face of each course, and each header corresponding to about the middle of the interval of the headers of the preceding course, and projecting at least one foot and a half back of the stretchers, and none of the latter to be less than six inches high and one foot thick, nor longer than four times its height.

The average thickness of the abutments and wings shall not be less than one-fourth of their height, and no where under 18 inches. The out-side batter shall not exceed two inches to one foot.

When the length of the bridge is subdivided into small spans and trestles are used, they must consist of three or four uprights (according to the width) are to be laid at equal distances from each other, the sleepers being 8 inches by 12. Their ends to rest either on sills at least 12 inches square, inserted into the top of the abutments, or caps of the same dimensions, and when the span requires it, on bearers balanced over the trestles, to which bearers the sleepers must then be secured by iron bolts or clamps.

The ends of the sleepers meeting on the same trestle to be pinned together.

On the sleepers a flooring two and a half inches thick, at least, is to be laid, with a substantial railing on each side, leaving a clear space of 12 or 18 feet of bridgeway. The planks to project nine inches beyond the sleepers.

In the floor, joists five inches square, are to intervene among the planks every 8 feet, their tops being made even with the planks by notches over the sleepers.

The joists will project on each side three feet beyond the sleepers, and serve both to stiffen the bridge and support the railing as follows:

A string piece 8 inches square being now laid along the floor, above each one of the exterior sleepers, and connected with it by screw bolts three quarters of an inch in diameter and eight feet apart; upright posts five inches square and eight feet asunder are to be spiked on the string pieces, each post on one of the joists, to the projecting ends of which they must be braced by pieces four inches square at about 45 degrees. The posts being then capped by a rail four inches by five, and the spaces between them occupied by St. Andrew's crosses three inches square, will complete the railing, the whole height of which must be at least four feet.

The railing to be painted, and the sleepers being either painted or pitched, and a board about two inches wider nailed on their upper surfaces before laying the floor.

The timber to be of a durable kind, such as white oak, heart pine,

black walnut, &c., and the pins black locust.

18th. The elevation of each bridge must be such that there may be a short ascent to it at each end, with a paved gutter in the depression, which should be at least as low as the top of the abutment.

19th. Near each bridge a descent not exceeding five degrees must be made to a ford, if such exists; this secondary way is to be only 12 feet wide.

20th. Mile posts of locusts to be firmly planted all along, and on the same side of the road, showing the distance both to the Staunton and Parkersburg road and Summersille.

21st. The Contractors will be required to keep each mile of the road in repair for one year from the time it shall be accepted.

JAS. BENNETT, Eng. and Supt.

Signed May 8, 1852 as part of the contract to which it was amended.

Jas. Bennett, Supt.

H. C. Moore

BIBLIOGRAPHY

Manuscripts:

Archives in the West Virginia Department of Archives and History,
Charleston, W.Va.

Archives in the West Virginia University Collection, Morgantown,
W. Va.

Cook, Roy Bird, Lewis County Sketch Book, II, in the West Virginia
University Collection, A & M 1561, Vol. 52, Box 16.

Court Records of the Lewis County Circuit Court.

Virginia Board of Public Works Inventory, compiled by John S.
Salmon, Virginia State Library, Richmond, Va.

Virginia Highway and Transportation Research Council, Charlottes-
ville, Va.

Printed Sources:

Acts of the Virginia General Assembly, Richmond, 1807-1860.

Acts of the West Virginia Legislature, 1863-1866.

Annual Reports of the West Virginia State Road Commission.

United States Government Census Report, 1850.

Virginia Board of Public Works, Annual Reports, Richmond, 1817-1860.

Weston Herald, 1853-1861.

Weston Sentinel 1846-1852.

Books:

Auvil, M., Covered Bridges of West Virginia, Parsons, W.Va.
1973 (2nd ed. rev.).

_____, The Bulltown Country, Folk Studies 10, Charleston,
1940.

Brown, William G., History of Nicholas County, W.Va., Richmond,
1954.

Callahan, James M., History of West Virginia, 1913.

- Coates, Albert W. Jr., "The Most Convenient Wayes"; A Story of Roads in Virginia.
- Gillespie, W. M., A Manual of the Principles and Practice of Road-Making, N.Y. 1848 (and ed.).
- Hunter, Robert, The Turnpike Movement in Virginia 1816-1860, Thesis, 1957, Columbia University.
- Pannell, J. P. M., Man the Builder, N.Y., 1977.
- Peters, J. T. and Carden, H. B., History of Fayette County, W.Va., Charleston, 1926.
- Sanchez-Saavedra, E. M., Description of the Country: Virginia's Cartographers and Their Maps, 1607-1881, Richmond, 1975.
- Singer, Charles et al, eds., A History of Technology, N.Y. and London, 1956.
- Smith, Edward C., A History of Lewis County, Weston, 1920.
- Sutton, John D., History of Braxton County and Central West Virginia, Sutton, 1919.
- Williams, John A., West Virginia: A Bicentennial History, N.Y. 1976.
- Young, Elizabeth, K., "Weston and Gauley Bridge Turnpike", West Virginia Highways.

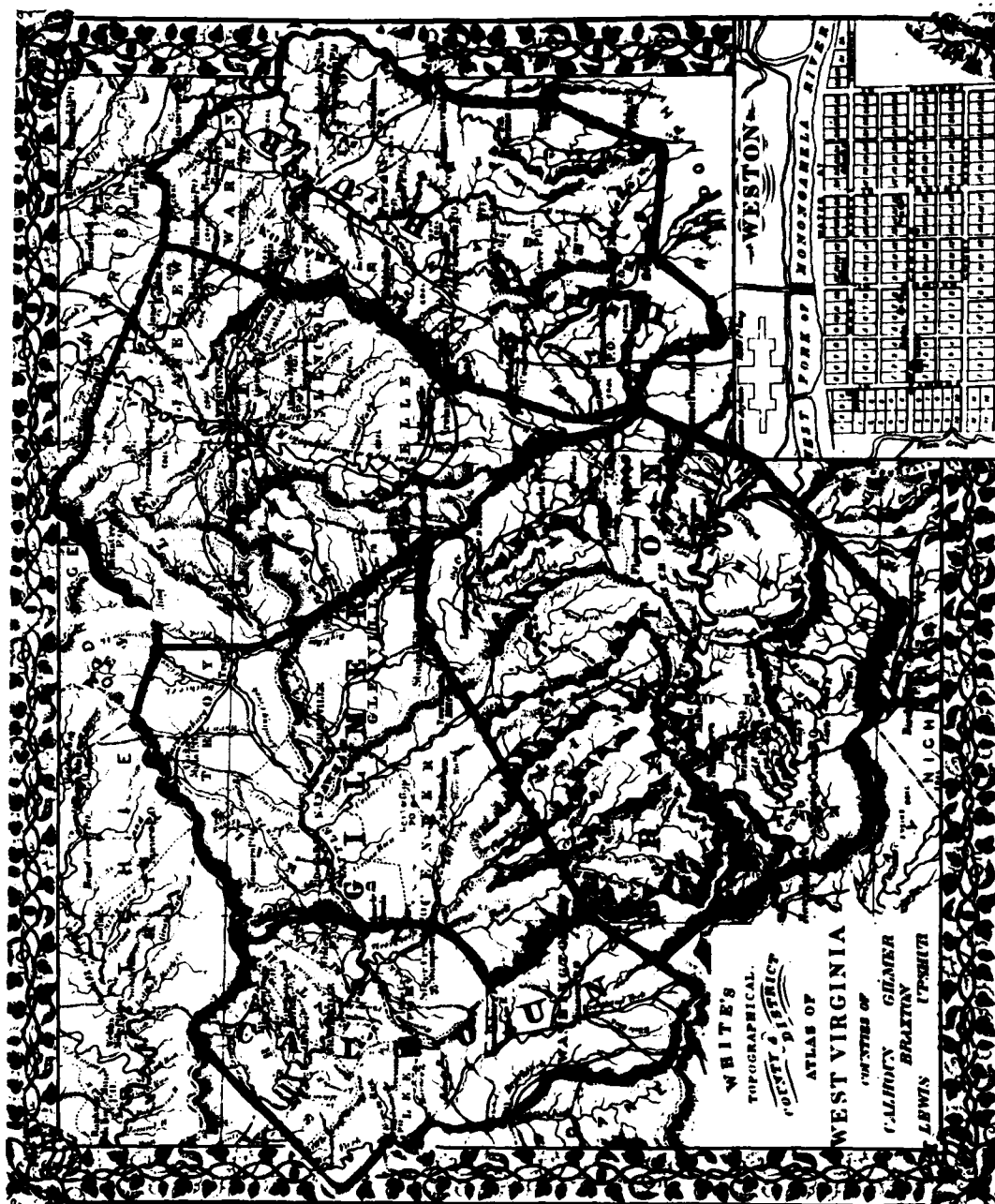
ABSTRACT

This history traces, in detail, the building of one of the 19th century Virginia turnpikes, The Weston and Gauley Bridge Turnpike. This road was built from 1848-1857 and was planned to serve as a link between the two east-west turnpikes - The Staunton to Parkersburg Turnpike and the James River and Kanawha Turnpike. This road not only played a role in the development of Lewis, Braxton and Nicholas Counties but was used as a military road during the Civil War. The decline and in part abandonment following the War has preserved significant portions of this road in nearly original condition.

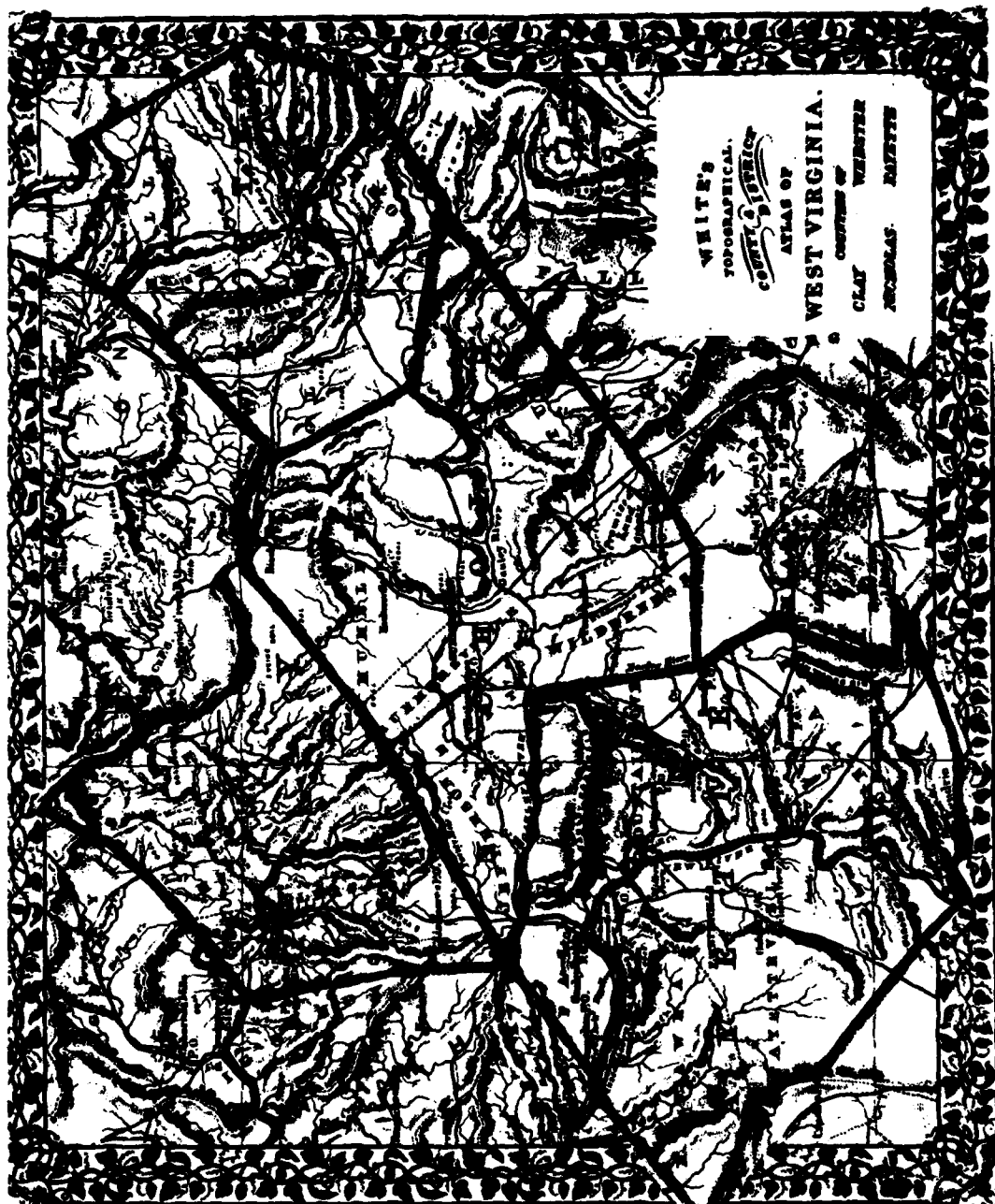
The report has also tried to put this particular turnpike into the wider context of the development of the turnpike system in Virginia in the nineteenth century and the improvement in road building techniques which took place at the same time in Europe and America.

LIST OF FIGURES

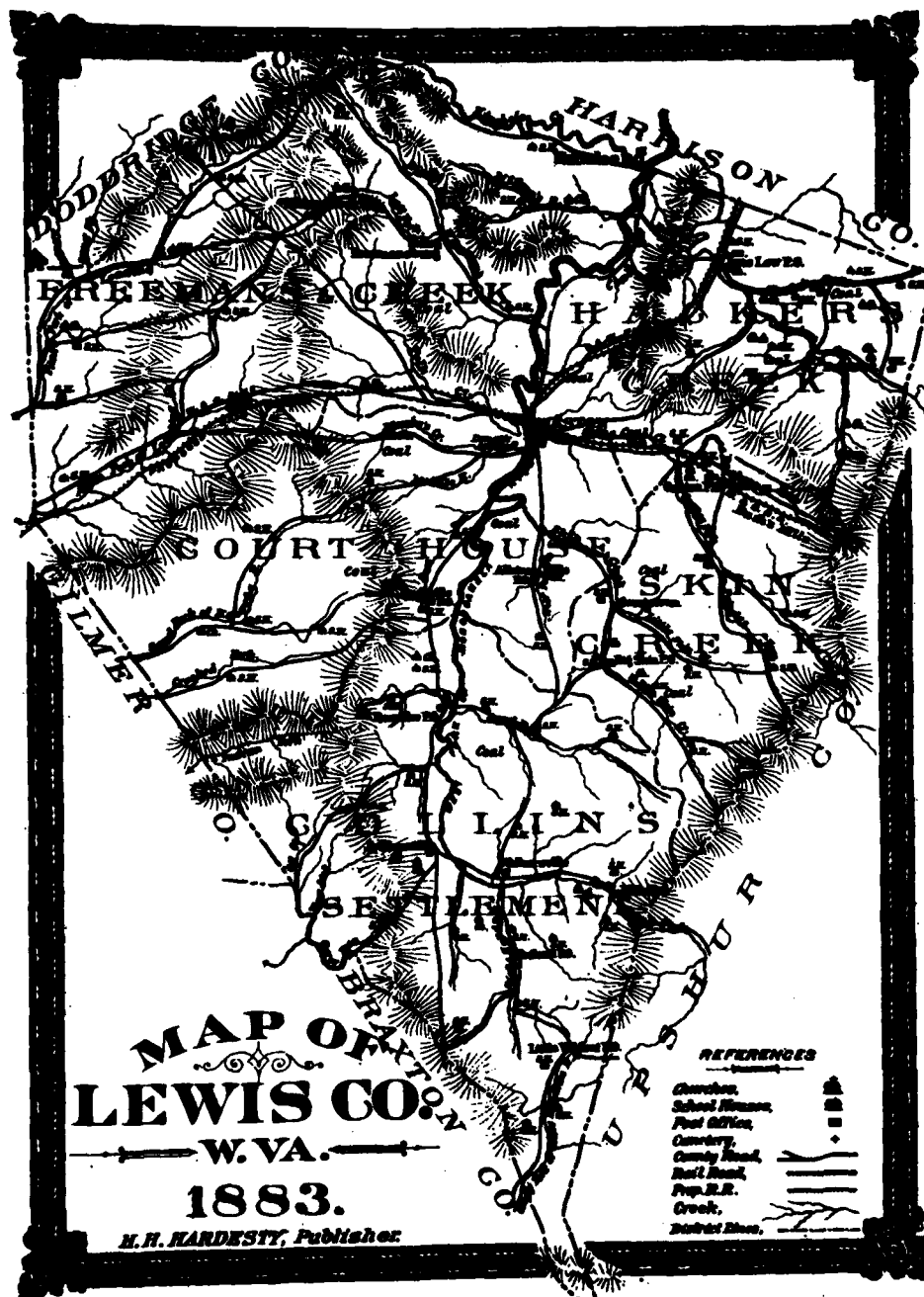
	Page
1. Cross sectional diagrams of a) Roman road, b) Tresauguet's system, c) Telford's system, d) McAdam's system.	10
2. Drawing of ring and hammer for road construction.	11
3. A "macadamized" road.	12
4. Crozet's Map of Virginia, 1848.	14
5. Portrait of Felix Sutton.	18
6. Advertisement for contractors on the Slavin's Cabin and Summersville Road	24
7. Repairing a dirt road.	25
8. A toll bar.	27
9. A typical small turnpike bridge.	28
10. Bendale Bridge over the West Fork River at Weston	30
11. Bulltown covered bridge, front view.	31
12. Bulltown covered bridge, elevation.	32
13. The suspension bridge over the Elk River at Sutton.	34
14. Salt Lick covered bridge.	36
15. View of the Weston and Gauley Bridge Turnpike road today, near Bulltown.	39
16. View of the Weston and Gauley Bridge Turnpike today, near Bulltown.	40



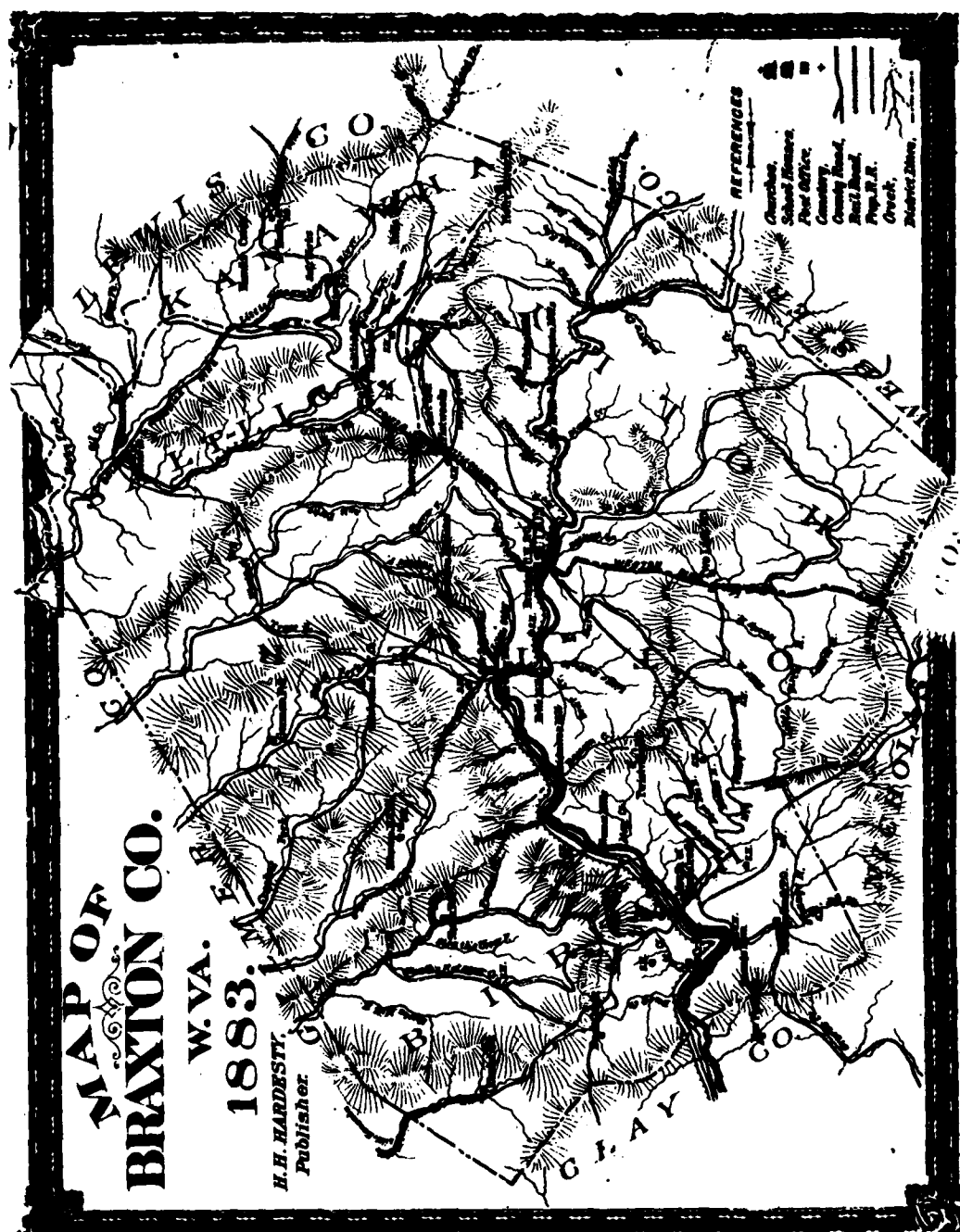
Map 1. Weston and Gauley Bridge Turnpike. Whites New County and District Atlas of the State of West Virginia, Philadelphia 1873



Map 2. Weston and Gauley Bridge Turnpike. Whites New County and District Atlas of the State of West Virginia, Philadelphia 1873



Map 3. Weston and Gauley Bridge Turnpike. Hardesty's Historical and Geographical Encyclopedia, Chicago and Toledo, 1883



Map 4. Weston and Gauley Bridge Turnpike. Hardesty's Historical and Geographical Encyclopedia, Chicago and Toledo, 1883

ILLUSTRATION CREDITS

Figure 2. Drawing of ring and hammer from Gillespie, W.M., A Manual of the Principles and Practice of Road-Making, p. 198.

Figures, 3, 7, 8, 9. Used by permission from the Virginia Highway Research Council.

Figure 4. Crozet's Map of Virginia, 1848, from the Virginia State Library.

Figure 5. Felix Sutton from Sutton, John D., A History of Braxton County and Central West Virginia.

Figure 6. Advertisement for contractors, from the Archives of the Virginia State Library.

Figures 10, 11, 12, 14. Used by permission from Miss Myrtle Auvil.

Figure 13. Used by permission from the West Virginia Collection of West Virginia University.

Maps 1, 2. From Whites New County and District Atlas of the State of West Virginia, Philadelphia, 1873.

Maps 3, 4. From Hardesty's Historical and Geographical Encyclopedia, Chicago and Toledo, 1883.